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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS



Problems of Public Utility Taxation

HAROLD M. GROVES and GEORGE M. KEITH

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Flexible Utility Rates

CHELCHIE C. BOSLAND

VOLUME X NUMBER 2

MAY, 1934

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912.

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Before me, a notary public in and for the State and county aforesaid, personally appeared Helen C. Monchow, who, having been duly sworn according to law, deposes and says that she is the managing editor of the Journal of Land and Public Utility Economics, and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

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(Seal.) JEAN GRIEFEN (My commission expires, May 7, 1936.)

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THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

MAY
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VOLUME X
NUMBER 2

Some Solved and Unsolved Problems of Public Utility Taxation in Wisconsin

By HAROLD M. GROVES and GEORGE M. KEITH

THE purpose of this article is not to give a complete history or analysis of public utility taxation in Wisconsin. A complete history should include an account of how the State originally taxed railroads upon their gross receipts only, and how after a stirring fight the railroads were in 1903 brought under the ad valorem property tax and made subject to annual assessment by the Tax Commission. It should include an account of how the taxation of other utilities, with the exception of telephone companies, went through much the same evolution. The analysis should include an examination of the technique of present ad valorem assessment, and of the arguments for and against the ad valorem system as compared with the alternative of taxing gross receipts. The problem of the proper level of utility taxes and the shifting and incidence of these taxes might also be considered. Comparisons between the Wisconsin system of public utility taxation and the systems of other states would prove valu-

able. Most of these matters have received considerable attention by other writers. For this reason and because of limitations of space, a few specific problems of utility taxation have been selected for treatment.

Double Standard for Rate-Making and Taxation

Regularly in the Wisconsin Legislature at each session and sometimes between sessions one or more legislators demands to know why in the name of common sense the Public Service Commission which determines rates should have one set of values for rate-making purposes and the Tax Commission should have a totally different set of values for taxation purposes. The legislator will be convinced that a given utility is escaping its just share of taxation because the utility "gets away with one value for rates and another for taxes."

If it were merely a matter of two distinct bodies determining two different values, the double standard could be easily eliminated. But the explanation

lies deeper than that. The rate-base is not really a value at all; it is simply a quantity used in determining a level of rates which will continue to draw capital into the utility business. On the other hand, the tax-base is truly a value. By statute it must represent, as nearly as can be determined, the selling value of the utility at the time chosen for the assessment. If all investments in utility property were wisely made and if regulation were perfect, the tax-base and the rate-base should approximately correspond. But neither of these conditions usually exists in fact. In the case of a defunct railroad, the rate-base will be much higher than the tax-base. The company cannot earn a fair return upon either its investments or the cost of reproducing its plant. Nevertheless, these are the factors which must be taken into account when a rate problem is presented to the Public Service Commission. On the other hand, were the Tax Commission to impose an assessment upon this company equal to its rate-base, it would be violating the statutory standard of assessment as well as the uniformity clause in the State Constitution. The company must be assessed at what it will sell for. And no one would buy this property without taking much account of its present and prospective earnings.

On the other hand, a strong utility, such as the Madison Gas and Electric Company, presents exactly the opposite picture. The rate-base of the Company, while never exactly determined, would not exceed nine million dollars on any standard of appraisal applicable to

rate-making purposes. Probably it would be considerably lower than nine million dollars. However, the 1932 assessment of the Company was 11.5 million dollars. This was the Tax Commission's estimate of what the Company might reasonably be sold for to a private purchaser. The excess of tax-base over rate-base might be attributable to the unusually favorable location in which the Company finds itself and its privilege of monopolizing this favorable location; it might be traceable to the failure of regulation (or at least its slowness) in reducing rates to the point where its service is furnished at cost. At any rate, the earning power is there and, except for the portion of it which is attributable to management, it can be passed on to another company in exchange. Therefore, it must be assessed.

Thus it is clear that the rate-base and the tax-base are two quite different things and usually cannot be reconciled. Probably this explanation will never entirely satisfy the legislator who makes the inquiry. But it is difficult to see how anything further can be done to satisfy him. For the double standard is written both in the statutory law and the Constitution and is defensible in addition as a matter of equity.

Treatment of Leased Property

According to the Wisconsin statute which provides for the assessment of steam railroads and other utilities by the State Tax Commission, the property of these utilities is to be assessed as a unit; all property used in the unit, whether belonging to the assessed company or not, is to be included in the unit assessment.¹ This means that, if

¹ Wis. Statutes (1933) 76.03 (10). Specifically the statute states: "The terms 'property of a company', or 'property of the company', or 'property of any company', or 'property of each company' or 'property of all companies' shall include all franchises, and all real and personal property of the company or com-

panies used or employed in the operation of its business, and shall include all title and interest of the company or companies referred to in such property as owner, lessee or otherwise, and in case any portion of property is jointly used by two or more companies, the unit

(Footnote 1 continued on page 111)

the XYZ Railroad leases a line from the ABC Railroad and the former operates this line as part of its system, the line is assessed to the XYZ Railroad and not to the ABC Company. Were the rule otherwise it would complicate the process of making the unit assessment and perhaps make it impossible. Probably no great injustice results to the utilities as a result of this provision in statutes; utilities can and do take account of it when property is leased. However, it does create a rather anomalous situation where a railroad is required to pay a tax to the state even though it owns no property in that state. The assessment of other property is on the basis of ownership rather than use. The Wisconsin Supreme Court seems to have given at least tacit approval to the inclusion of leased property for assessment under the unit rule.²

It is apparent that, unless the Commission follows the rule of the statute consistently, double taxation will result. For example, where an independent bridge company rents all property to one or more railroads, its property is fully included in the assessment of the railroads and double taxation results if that property is independently assessed. Instances where this has been done have occurred not infrequently and they can be explained only on the ground that the Tax Commission is confused in its own thinking. The Commission "gets away with" this violation of statute probably because the taxpayer and his attorneys are likewise confused.

(Footnote 1 continued from page 110)

assessment of the 'property of each company' shall include and cover a proportionate share or that portion of the property jointly used so that the assessment of the 'property of all companies' having any rights, title or interest of any kind or nature whatsoever in any such property jointly used shall in the aggregate include only one total full value of all such property."

² *Merrill Railway and Light Co. v. Merrill*, 119 Wis.

Taxation of Utilities under the Net Income Tax

From the date when the net income tax law was adopted until 1929 most of the important utilities of the State were not subject to the net income tax upon their operating income. A law enacted in 1929 removed the income tax exemption from these utilities, except steam railroads and insurance companies. The proposal to bring utilities under the income tax raised an interesting issue. Utilities claim that under the "unit rule" and ad valorem assessment their net income is taken into account in making their property tax assessments and that to tax them again upon their net income would be double taxation. Through a process of assessment which takes account of capitalized net income as one of the factors determining value, utilities are assessed, so they argue, upon intangible property. The intangibles, whether passing under the name of good will, franchise value, or going concern value, all are included in the value of the franchise assessed under the unit rule. The utilities say that they alone among property taxpayers are assessed on such intangibles and that it is no more than fair, consequently, to exempt them from the net income tax.

Those who argue that a utility should pay an income tax like any other corporation claim that the same standard of assessment holds for utilities as for other properties. In all cases the standard of assessment is what a property will sell for at a free private sale. Moreover, it is contended that under regulation a utility is expected to furnish serv-

249, 96 N. W. 686 (1903); *Superior v. Allouez Bay Dock Co.*, 166 Wis. 76, 164 N. W. 262 (1917); *Wisconsin Electric Power Co., Respondent v. Town of Lake Appellant*, 186 Wis. 199 (1925). See also *Opinions of Attorney General of Wisconsin*, Vol. IV, 842; also *Pleasant v. Missouri-Kansas-Texas Railway Co.*, 66 Fed. (2nd) 842 at 849 (1933).

ice at cost; that is, under conditions which will yield a fair return upon its capital. Except for the lag in or failure of regulation there would be no excess earnings upon which "intangibles" could be based. In other words, as Professor Commons has ingeniously phrased it, the "good will" of a utility is the "good will of politicians". On this reasoning it is contended that the utility should not be heard to complain if its intangibles are included under both the income and property tax. This latter argument appears to be entirely sound and to warrant the action taken in 1929 to include all utilities under the net income tax. Railroad companies, by the same token, appear to have a special privilege in their income tax exemption. The railroads' cup of woes has been overflowing, however, during the last few years, and this has given them bargaining power. Moreover, the railroads can point to the fact that they have subsidized their competitors in paying taxes which were in part spent upon public highways.

The Average State Rate

Light, heat and power utilities were subject to a very anomalous classification in Wisconsin for many years. If these utilities happened to be combined with a street railway property, they paid a property tax at the average state rate and no state income tax. Other light, heat and power utilities were of two kinds, those extending into more than one taxation district and those entirely within one taxation district. Both of these latter classes of utilities were placed on the local rolls and taxed as general property. Both paid a state income tax. The Tax Commission assessed the first class and apportioned the total assessment among districts. The second type was locally assessed.

This absurd classification resulted in

one utility in the Milwaukee area (The Milwaukee Gas Light Company) paying property taxes at the local rate and an income tax, while its principal competitor (The Milwaukee Electric Railway and Light Company) paid property taxes at the average state rate and no income taxes. The local rate in this case was substantially higher than the average state rate.

This anomalous situation was attacked in the Legislature of 1927 and again in 1929. An attempt was made to put all light, heat and power utilities upon the local rolls and to require all utilities to pay an income tax. However, as the statute was finally amended, all light, heat and power utilities were required to pay the net income tax and all that had been state assessed were henceforth to pay property taxes into the state treasury at the average state rate. The receipts were to be apportioned according to a 15-20-65% ratio: 15% to the State, 20% to the counties, and 65% to the municipalities.

This action placed all the important utilities of the State under the same standard of assessment and taxation but in so doing it created differences between utility property and other property. In many communities, particularly in northern Wisconsin, local rates are very much higher than the average state rate. Legislators from these regions have resented the fact that utilities escape with a much lighter burden than farmers and merchants in the same communities. Some sentiment in favor of putting utility property on the local tax rolls continues. However, there are substantial objections to this alternative solution. It would create a difficult administrative problem. Apportionment of the assessment would have to be made not only between localities but also between school dis-

tricts. Moreover, it has been demonstrated that to put utility property on the local tax rolls would prove a bonanza to the utility companies. Utility property is highly concentrated in particular districts and, if this property is added to the local rolls, it would create a rich base for the locality and make possible a very low rate of utility tax.

A compromise was suggested in 1931, in a bill which would make utility property subject to the average rate of all the districts into which it extends. This rate would be determined by dividing the property taxes of all these districts by the equalized value of their general property. This compromise would take account of local differences to some extent and give less weight to the relatively low rate in localities in which much utility property is concentrated. The proposal failed in the Senate, however, and utilities are still taxable at the average state rate. Unless a larger part of the revenues from these utilities is to be taken by the State, some legislation of the sort proposed in 1931 appears to rest on sound ground.

The Distribution of Utility Tax Revenues

Under present laws, 65% of utility taxes (with the exception of railroad and telephone taxes) is returned by the State to the municipalities. The apportionment among specific municipalities is based upon the location of the property and business transacted, with equal weight accorded each factor. In the case of electric utilities, business transacted is credited to the jurisdiction from which retail sales are made. Wholesale sales are ignored except (quite illogically) where such sales are made to a municipally owned utility. Sales are less concentrated than property, but the distribution which results from apportionment with equal weight

to both factors gives very substantial revenues to a relatively few towns, villages, and cities and gives these few municipalities more revenue, in the writer's opinion, than they are entitled to or can use to good advantage.

The contention will be made, of course, that any taxation district has as much right to tax the utility resources within its borders as it has to tax its soil or its factories. Fortunately, the idea of natural rights is now in disfavor. The problem must be solved by weighing the social consequences of alternative policies. There is a substantial difference between localizing the revenues from factories and farms on the one hand and doing the same with a public utility generating plant on the other. The public utility plant usually involves very little employment of labor and thus very little additional public expense to the district in which it is located. No new education and public welfare program is made necessary because a utility property is located in a district.

Not only is the bulk of public utility tax revenues distributed to the localities but in addition much of it is passed on to the school districts. The division is complicated and thoroughly irrational. In counties having a population of 60,000 or less, 50% of the amount received by any town or village from the state treasurer on account of the assessment of any street railway, light, heat, power or conservation company must be equitably apportioned by the town board or village trustees to the various school districts or parts of school districts in which the property of such company is located, in proportion to the amount which the property of such company within each school district bears to the total valuation of such property in the town or village or part

thereof; provided that no such school district shall in any event receive more than the actual cost of operating and maintaining its school. In counties with more than 60,000 population there is no distribution of utility taxes to school districts, except that in counties having a population of 250,000 and over the tax received by any town in the county may by resolution of the town board be apportioned to give the school districts 20% of the tax. The apportionment in this case is irrespective of the utility's location and is according to the school census.

A town, village, or city which is fortunate enough to have a public utility generating plant receives from the state not only a very large portion of utility taxes but also a considerable slice of the net income taxes raised from the utility. The state law requires the return of 50% of the income tax proceeds to the place in which the income was earned. Finally, to make the cup over-

flowing, the State still continues to give school aids to districts without regard to the income tax and utility tax receipts of the municipality or of the school district. The only limitation is that no district shall receive more than the cost of operating a school.

That several towns in the State are enjoying a rich feast as a result of the location within their borders of public utility property is evident from Table I. The towns listed were chosen, not because they were the 12 receiving the greatest amounts of utility taxes, but because they were quite evidently towns in which the value of utility property located therein was the dominant factor in determining the amounts allocated to them. Of course, the town of Lake, in which the Lakeside plant of The Milwaukee Electric Railway and Light Company is located, is also the town receiving the largest allotment made to any one town. It is significant that five towns having 1.13% of the taxable

TABLE I. UTILITY TAXES APPORTIONED TO CERTAIN WISCONSIN TOWNS AND PROPERTY TAX ASSESSMENTS, RATES, AND LEVIES IN THESE TOWNS AS COMPARED WITH ALL TOWNS, 1933*

Town	County	Full Value Assessment by Tax Commission	Distribution of Public Utility Taxes to Towns (65% of Total Tax)	General Property Taxes Levied	Full Value General Property Tax Rate	Public Utility Taxes Apportioned Expressed as Tax Rate (on General Property)	Ratio Public Utility Taxes to General Property Tax Levies (Percentages)
Total for All Towns†		\$1,678,293,229	\$1,573,583.17	\$21,441,483.20	.01278	.000938	7.34 %
Lake	Milwaukee	\$11,995,706	\$355,121.33	\$105,702.63	.0081 ‡	.02794	317.04
Prairie Du Sac	Sauk	813,537	43,500.95	2,186.83	.00269 §	.05347	1989.77
Wilson	Sheboygan	1,808,703	38,722.76	6,096.38	.00337 §	.02141	635.17
Stephenson	Marinette	1,044,202	37,155.52	9,207.10	.00882 ¶	.03558	403.55
Lafayette	Chippewa	1,064,238	34,139.42	4,449.80	.00418 ¶	.03208	767.21
Eagle Point	Chippewa	1,730,502	23,909.30	3,637.71	.00210 ¶	.01382	657.26
Anson	Chippewa	1,023,351	13,669.96	6,912.74	.00676	.01336	197.73
Big Falls	Rusk	77,655	12,868.58	2,024.18	.02607	.16571	635.74
West Point	Columbia	949,029	11,342.82	6,260.64	.00660	.01195	181.17
Hunter	Sawyer	108,380	9,105.20	1,506.63	.01390	.08401	604.34
Commonwealth	Florence	188,647	8,451.54	6,573.13	.03484	.04480	128.57
Amberg	Marinette	681,516	7,751.91	15,112.36	.02217	.01137	51.29
5 Towns Receiving over \$30,000 in Utility Taxes—Total		\$16,726,386	\$488,639.98	\$127,642.74	.00763	.02921	383.81
Percentage of Total for All Towns		1.132 %	33.18 %				
12 Towns Listed—Total		\$21,485,466	\$575,739.29	\$169,664.13	.00790	.02680	339.34
Percentage of Total for All Towns		1.454 %	39.09 %				

* Data from records of the Wisconsin Tax Commission.

† Figures are for 1932; complete later figures not available.

‡ State and County taxes of \$89,881.98 paid out of surplus.

§ Property taxes levied for local school tax only.

¶ Property taxes levied for local school tax mainly.

general property in the towns of the State receive 33.18% of the public utility taxes distributed to all towns. Also 12 towns with less than 1.5% of the total property in towns receive only a little less than 40% of all utility taxes distributed directly to all towns. Of the list of 12 towns only four have general property tax rates which, when computed on a full-value basis, exceed the average for the State, while the other eight have rates far below the average. The last two columns express public utility taxes received in terms of tax rates based on full value. With two exceptions such rates greatly exceed the rates on general property. How greatly the utility taxes distributed to these towns reduce the local tax burdens is shown by the ratios in the last column. Here it appears that all towns in the State received in 1932 utility taxes equal to $7\frac{1}{3}\%$ of their local general property tax levies, whereas the 12 listed in Table I received much more, ranging up to almost 20 times the local property tax levy in the town of Prairie du Sac, where an important dam and generating plant of the Wisconsin Power and Light Company is located.

The Town of Wilson in Sheboygan County is a most striking example of how fortunate is the town in which a big utility property is constructed. Table II shows the increased utility tax receipts as the new power plant of the Wisconsin Power and Light Company approached and finally reached completion.

The least that should be done about this situation is to amend the school aid law so as to include in the base which determines the distribution, not only the equalized value of general property but also the value of public utility property. At present a large portion of school aids is distributed to the districts in inverse ratio to the value of their general property. There is no justification for spending state money upon districts which have ample support as a result of large amounts of public utility property located within their borders. The law should be made uniform with regard to division of public utility revenues among school districts. Going further, the revenues from utility taxes should be earmarked for county and state use to a much greater degree than is now the rule. If the 15-

TABLE II. PROPERTY TAX LEVIES, ASSESSMENTS, AND RATES AND UTILITY TAX RECEIPTS IN THE TOWN OF WILSON, SHEBOYGAN COUNTY, WISCONSIN, FOR FISCAL YEARS ENDING MARCH 30, 1928-1934*

	1928	1929	1930	1931	1932	1933	1934
Property Tax Levies							
Town purposes.....	\$10,777	\$16,106	\$14,233	\$12,524	.....	.....	.....
School district purposes.....	5,121	5,170	6,282	6,327	\$6,456	\$6,053	\$6,096
State purposes.....	1,192	1,127	2,040	1,894	.....	.....	.....
County purposes....	8,815	11,778	10,950	9,457	.....	.....	.....
TOTAL.....	25,905	34,181	33,505	30,222	6,456	6,053	6,096
Public Utility Tax from State.....	915	1,720	1,966	3,157	19,781	40,378	38,723
Tax Commission Full-Value Assessment.....		2,758,778	2,836,150	2,571,350	2,289,130	2,012,510	1,808,703
Full-Value Local Property Tax Rate.....		.01239	.01181	.01175	.00282	.00301	.00337

From records of the Wisconsin Tax Commission.

20-65 rule were reversed and the 65% of the revenue given to the State instead of to the municipality, it would be a great improvement.

It is one thing to point out a solution of the utility tax distribution problem and quite another thing to secure its adoption. Municipalities now have a vested interest in utility taxes and will not surrender them without a first-class battle. Some of them have made commitments on the expectation that these revenues would be permanent. While a few particular municipalities stand to lose heavily by a new distribution system, neither the county nor the State stands to gain very heavily. The result is that the pressure brought to bear upon the Legislature is mainly for a retention of the present vested interests. This fact, combined with the inertia of an existing institution, may prevent a correction of an indefensible situation for some time to come.

The Taxation of Telephone Companies

Telephone companies in Wisconsin have always been taxed on their gross receipts and are exempt from all property taxes. They are the important exception among the utilities which in general were transferred during the early years of this century from the gross receipts to the ad valorem basis. Before 1931, the license fee on telephone companies was computed as a graduated percentage on gross receipts, ranging from 2½% for companies having gross receipts of less than \$100,000 to 5% for companies having gross receipts of more than \$500,000. If the license fee in any case amounted to less than five cents for each telephone operated, the latter sum was paid instead of the percentage of gross receipts. For the most part this occurred only with small mutual companies.

For the purpose of distributing the

proceeds of the telephone tax the gross receipts of the telephone tax were classified into receipts from toll line service and receipts from local and rural exchange service. The portion of the license fee computed on the exchange receipts was divided, 15% to the state, and 85% to the town, village, or city in which the revenue was received. The portion of the tax attributed to toll line service all went to the state. Where companies paid on the basis of five cents per phone the revenue went entirely to the state.

During the 1931 session of the Legislature much the same kind of attack was made upon the telephone tax system as had been made upon the railroad gross receipts tax in 1903. It was shown that the telephone companies were paying substantially less than they would have paid under an ad valorem system. It was estimated that an ad valorem tax would yield from 25 to 30% more revenue. The rates had proved very inflexible since no change in them had been made since 1909. Moreover, the tax was collected by the state treasurer. It was charged that not only were the telephone companies largely self-assessed but that the treasurer made little or no effort to check the telephone companies' reports.

However, the telephone companies had one strong weapon of defense against the ad valorem tax. There are many small telephone companies in the State and all of them enjoyed very favorable rates under the graduated tax. These companies stood to lose more than the big companies if the ad valorem system were adopted. These small companies, moreover, have a very great influence with individual legislators. The result was that the telephone companies were quite successful in writing the new telephone tax law and getting it passed.

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The law as passed promised to raise more revenue than the old law but it threw all logic and principle to the winds. The last *Report* of the Wisconsin Tax Commission summarizes it as follows:

"1. The tax on the gross receipts from toll line service is computed separately from the tax on local exchange receipts, instead of all receipts being combined as formerly. This tends to throw the receipts in a lower rate bracket.

"2. The tax on the local exchange receipts of each exchange is computed separately, which tends to throw the receipts into a lower license fee rate bracket.

"3. The rate schedule for computing the taxes is changed, with a greater degree of graduation and higher rates in the higher brackets. The rates applied to receipts from toll line service differ from those applied to local exchange receipts. The old and new rates are as follows:

Gross Receipts	Old Rate	New Rates	
	Computed on Total Gross Receipts of Company	Toll Line Computed on Toll Line Receipts of Company	Local Exchange Computed on Receipts of Each Exchange Separately
Under \$10,000.....	2.5%	2.5%	2.5%
Between:			
\$ 10,000 and 25,000....	2.5	2.5	3.0
25,000 and 50,000....	2.5	3.0	3.0
50,000 and 75,000....	2.5	3.5	3.0
75,000 and 100,000....	2.5	4.0	4.0
100,000 and 150,000....	3.0	4.5	4.0
150,000 and 200,000....	3.0	4.5	5.0
200,000 and 300,000....	3.0	5.0	5.0
300,000 and 400,000....	4.0	5.5	5.0
400,000 and 500,000....	4.0	6.0	5.0
500,000 and 600,000....	5.0	6.5	6.0
600,000 and 700,000....	5.0	7.0	6.0
700,000 and 800,000....	5.0	7.5	6.0
800,000 and over.....	5.0	8.0	6.0

"4. The only administrative change of importance provides that the state treasurer shall notify the treasurer of each taxing district of the amount which the district should receive from the telephone companies.

"No change was made in the distribution of the tax between the state and the localities."

The new law has fulfilled its promise so far as productivity is concerned. In 1932 the taxes collected on the basis of 1931 gross receipts amounted to \$1,330,503 as compared with \$1,140,446 collected in 1931 (Table III). It should be remembered that the economic depression was already operating to decrease the gross receipts of telephone companies on which the tax was computed. In spite of this fact the total taxes paid by telephone companies increased \$190,057. Of this increase \$159,648, or almost exactly 84%, went into the state treasury, the localities securing only \$30,409 in additional revenues. As will be indicated later, most of this latter amount went into the coffers of the larger municipalities.

It is well known that telephone companies have suffered a more drastic cut in revenues from toll than from exchange services. In spite of the fact that the State's share is primarily determined by the volume of toll revenues, the State in the fiscal year ending June 30, 1933, received more than the amount collected two years previously under the old law. The localities during the same period showed a decline in tax revenues amounting to 8.1%.

The statement was made above that the total of telephone taxes collected under the new law increased \$190,057. The American Telephone and Telegraph Company paid \$39,295 additional and its subsidiary, the Wisconsin Telephone Company, contributed an added \$160,418. The two companies paid \$199,713 more than in the preceding year so that all other companies enjoyed an actual decrease of \$9,656 in taxes under the new law. The way in which this decrease came about can be

TABLE III. TOTAL TAXES PAID BY TELEPHONE COMPANIES IN WISCONSIN AND THEIR DISTRIBUTION, 1931-1933*

Fiscal Year Ending June 30	Total Taxes		State's Share			Localities' Share		
	Amount	Percentage Changed from 1931	Amount	Percentage Changed from 1931	Percentage of Total for Year	Amount	Percentage Changed from 1931	Percentage of Total for Year
1931.....	\$1,140,446	.....	\$468,937	.....	41.1%	\$671,509	.....	58.9%
1932.....	1,330,503	+16.7%	628,585	+34.0%	47.2	701,918	+ 4.5%	52.8
1933.....	1,094,969	- 4.0	478,162	+ 2.0	43.7	616,807	- 8.1	56.3

* Data from records of the State Treasurer.

illustrated by showing the payments based on gross receipts for particular exchanges (Table IV). The Wisconsin Telephone Company is chosen because it has exchanges with total gross receipts in every class.

The foregoing analysis clearly shows that whatever increase in tax revenues may have followed the imposition of the new rates has gravitated to the larger and more populous areas. The less populous areas served by a large company find their revenues diminished by at least half. If these latter areas had been served by a small independent company, their revenue status would not have been affected by the law. Under the old law the size of the com-

pany serving a given area determined the rate used in computing the taxes paid into the treasury of the locality. The theoretical or other justification for making the size of the municipality the determining factor in the rate of telephone taxes paid, as is done by the new law, remains exceedingly obscure, to say the least.³ The administration of the law was left in the hands of the state treasurer and no provision was made for improving it in any way. It may be said in conclusion that Wis-

³ A full consideration of this question would involve the theory of shifting and incidence of taxes and the theory of rate-making to be followed by the Public Service Commission, in so far as allowance is made for taxes.

TABLE IV. TAXES PAID BY THE WISCONSIN TELEPHONE COMPANY IN 1932 ON THE RECEIPTS OF CERTAIN EXCHANGES AND THE DISTRIBUTION OF THESE TAXES UNDER THE NEW WISCONSIN TELEPHONE TAX LAW COMPARED WITH WHAT WOULD HAVE BEEN THE CASE UNDER THE OLD LAW*

Exchange †	Receipts 1931	Total Exchange				Localities' Share (85%)		State's Share (15%)	
		Tax Rates		Total Tax		Under Old Law	Under New Law	Under Old Law	Under New Law
		Old Law	New Law	Under Old Law	Under New Law				
City of Milwaukee.....	\$6,199,377.70	5%	6%	\$309,969	\$371,963	\$263,474	\$316,168	\$46,495	\$55,795
City of Racine.....	479,641.23	5	6	23,982	28,958	20,485	24,642	3,597	4,316
City of Beloit.....	171,567.33	5	5	8,578	8,578	7,292	7,292	1,286	1,286
City of Neenah.....	72,284.57	5	4	3,614	2,892	3,072	2,458	542	434
City of Ashland.....	64,201.26	5	3	3,210	1,926	2,728	1,637	482	289
City of Burlington.....	32,814.65	5	3	1,641	984	1,395	837	246	147
City of Berlin.....	24,416.85	5	3	1,221	733	1,038	623	183	110
Village of Grantburg.....	8,164.77	5	2½	408	204	347	173	61	31
City of Bayfield.....	4,637.24	5	2½	232	116	197	99	35	17
Town of Wiota.....	937.51	5	2½	47	24	40	20	7	4

* From 1932 Reports of Telephone Companies in State Treasurer's Office.

† Exchange receipts allowable to municipality are given although the rate may be governed by a total of which the amount shown is only part. Many exchanges have receipts from business done outside the municipality in which they are located.

consin's experience with the gross receipts tax as applied to telephone companies has not been such as to recommend an extension of the same system to other public utilities. Rather it appears to indicate that the ad valorem system applied to other utilities had better be extended to include telephone companies.

Much progress has been made in Wisconsin during the last 30 years toward putting the taxation of public

utilities upon a rational basis. The field has always bristled with problems. As indicated in this article, some of these problems are incapable of solution or have been satisfactorily solved. Others, such as the taxation of telephone companies and the distribution of utility revenues, can be, but are not yet, solved. The main purpose of this article has been to throw further light on these problems and to suggest what their solution may be.

Real Estate Vacancy Trends in Denver during the Depression

By F. L. CARMICHAEL

THE Bureau of Business and Social Research of the University of Denver, at the request of the Denver Real Estate Exchange, made the initial inventory and vacancy survey of Denver real estate as of September, 1930.¹ The survey has now been made for four successive years. The vacancy counts were taken between September 10 and September 15 in all cases, so that a four-year record unaffected by seasonal changes is available.

Certain aspects of other studies made by the Bureau—Ownership and Rentals of Residences, Infant Mortality in Denver, and Traffic Flow in Denver—bear important relationships to the trend of vacancies, slum clearance, and new building. The purpose of this article is to describe the changes which have taken place in real estate vacancies in Denver in response to the depression and to comment briefly upon certain points of interest to the realtor that may be gleaned from the other studies. As an aid in interpreting the data, an explanation of important terms and a brief description of the City are presented first.

The Denver Real Estate Exchange desired that certain types of residences—single residence, double residence, terrace, and apartment house—be strictly defined. The concept of the living or family unit, applicable alike to all types, is an integral part of the definitions of these terms.

A living unit consists of a residence or part of a residence or an apartment which has its own kitchen and is suit-

able for occupancy by one family. A residence with three kitchens, for example, is considered to have three living units. An apartment house with 25 apartments has 25 living units.

The term "single residence" is applied to dwellings which are suitable for occupancy by one family only. If a building were constructed as a single residence and later altered to accommodate two families, that is, if a second kitchen were installed, it was considered a two-family residence. In case it were converted into three or more living units, it became a "rebuilt apartment."

A "double residence" is a building of two living units, separated by a party wall. A residence having one and only one party wall, but equipped with three or more kitchens—two kitchens on one side and one or two on the other—is considered to have three or more living units of the two-family classification. Hence, the double residence group consists of dwellings originally constructed for occupancy by two families, with a wall separating the two living units, and still so used. In addition to the cases already mentioned, two-family residences include buildings of two stories which have a living unit on each floor.

The distinguishing characteristic of the "terrace" or "row house" is the fact that three or more living units are separated by two or more party walls. An apartment house consists usually of four or more living units heated by a common heating plant. The classification of "residence shack" was employed as a means of eliminating properties of

¹ For detailed reports on these surveys see *University of Denver Business Review*, Vol. 6, No. 9; Vol. 7,

Nos. 1, 11, and 12; Vol. 8, Nos. 8 and 11; Vol. 9, No. 4; and *University of Denver Reports*, Vol. 9, No. 7.

² This
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small value from the other groups. As employed here, it refers to residences the assessed values of which are less than \$200 each.

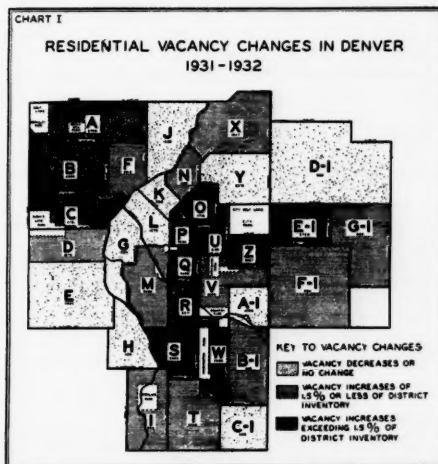
No attempt was made to record a fractional number of stories. One story or a fraction thereof was considered as one story. Buildings having one and a fraction stories were placed in the two-story group; two and a fraction stories, in the three-story group. In the count of the number of rooms, living rooms, dining rooms, bedrooms, kitchens, sun rooms, observatories, offices, and dens were included; bathrooms, toilet rooms, shower rooms, sleeping porches, halls, storage rooms, stores, and breakfast nooks were excluded.

Denver is largely a city of single-family residences. In 24 of the 33 districts shown on Chart I, single-family residences constitute more than $\frac{1}{2}$ of the total number of living units in those sections; and they are 60% of all the living units in the City. Districts P and Q are the older and the newer apartment house districts, respectively. Double residences, though comparatively unimportant in number, are scattered widely through the City. Terraces or row houses are no longer an important type in new construction; they are located for the most part in the older sections—namely, those along the South Platte which flows from south to north through the City. Districts B, Q, V, W, and E-I are among the comparatively good residential sections; those along the river are relatively poor on the whole.

District L is the central business section. The center of residential building prior to 1901 was in District L near the boundary between L and P. During the

past three decades it has moved in a southerly and easterly direction.

The distribution of births in the various sections of the City, by color or nationality of the mother as obtained through the mortality study, is an index of the racial characteristics of these sections. Of the four groups distinguished—white, black, yellow, and Mexican—the whites predominate in all districts. The blacks are numerous in District O; small numbers are found in D, N, U, Y, and A-I. Births among the yellow races occurred in districts K, L, and N only. The Mexicans are most numerous in districts D, F, G, K, L, M, N, and X, all of which have the Platte River as portions of their boundaries.



The number of living units on which the vacancy percentage of each district is based appears below the district letter.

The residential property situation has been studied in considerable detail. An inventory was compiled at the outset by type of residence, size of the living unit, period in which the property was built, and by districts of the City.² It has since been brought up to date

Collins, Manager of Revenue for the City and County of Denver, 1923-1931.

²This information was transcribed from "Real Estate Appraisal" cards prepared from a careful field survey conducted under the direction of Clem W.

through examination of the records of the Manager of Revenue and of the Building Inspector. The vacancy counts were made through the assistance of the local postal authorities.³

Prior to September, 1931, Denver was comparatively unaffected by the depression. Because of this and the relative inactivity in building, the residential vacancy situation showed some improvement during the year ending at that time. In response to the increasing severity of the depression, large increases in vacancy occurred during the following year (1932). The 1933 count, however, shows that marked improvement has occurred since September, 1932. The record as to consolidation of homes follows a similar pattern—an increasing tendency, up to

³Through the courtesy of Frank L. Dodge, Postmaster, each mail carrier was asked to record, on a form prepared for the purpose, sufficient data on each piece of vacant property on his route to enable the Bureau

of Research to identify it with the inventory record, thus insuring the same classification scheme for vacancies as for the inventory itself.

September, 1932, for two or more families to occupy the same living unit and the reverse since that time. The detail for living units of these kinds may be seen in Table I.

Residential construction has not been sufficient in recent years to provide accommodation for the normal increment in population; and there was a tendency early in the depression—from 1930 to 1931—for the vacancy situation as a whole to improve. Apartment vacancies increased, however, throughout the two years ending September, 1932. Since apartment rentals are higher on an average than those of other residence types, this may be construed as reflecting a continuous decline in the purchasing power of the people during 1931 and 1932. The four-year vacancy

TABLE I. VACANCY RATES BY SIZE OF LIVING UNIT FOR IMPORTANT RESIDENCE TYPES, 1930-1933.

Type and Size of Living Unit	1933	1932	1931	1930
Single residences				
One-story, 4 rooms or less.....	3.3%	3.4%	3.2%	4.1%
One-story, 5 rooms.....	2.7	3.5	2.3	2.5
One-story, 6 rooms.....	2.5	3.1	2.2	2.9
One-story, 7 rooms or more.....	1.7	3.1	2.4	3.9
Two stories, all sizes.....	5.5	5.2	4.5	4.6
Residence shacks.....	3.0	3.4	6.1	7.3
Total.....	3.6	3.9	3.3	3.8
Apartments				
Two rooms or less, no bedroom.....	11.8	14.2	12.9	13.8
Three rooms or more, no bedroom.....	14.2	13.9	19.1	16.6
One bedroom, all sizes.....	14.0	18.5	15.0	12.8
Two bedrooms, all sizes.....	12.6	17.6	15.0	11.7
Three or more bedrooms, all sizes.....	12.5	13.3	14.0	10.2
Rebuilds, all sizes.....	11.3	14.6	12.3	12.3
Total.....	12.9	16.4	14.1	12.9
Double residences				
One-story, all sizes.....	7.4	9.7	6.6	7.3
Two or more stories, all sizes.....	15.1	12.4	9.3	10.5
Total.....	9.4	10.4	7.1	8.1
Terraces				
One-story, all sizes.....	14.5	14.0	11.9	14.7
Two or more stories, all sizes.....	19.1	18.8	14.4	19.0
Total.....	16.5	16.0	12.9	16.5

record by construction periods and by residence types appears in Table II.

The apartment appears to be the most responsive also to the elements in the present situation which are making for improvement. Apartment vacancy showed a decline of 22% between 1932 and 1933—almost double that of any

other type and more than treble that for all other types combined (7%). This suggests the desirability of further research relative to the merits of apartment vacancy statistics, compiled monthly perhaps, as an indicator of business change.

The small living unit showed greater

TABLE II. VACANCY COMPARISONS, 1930-1933, BY PROPERTY AGE GROUPS
(All Districts Combined)

Residence Type and Date	Percentage Vacancy of Properties Constructed				
	Prior to to 1901	1901 to 1915	1916 to 1925	1926 to Date	In the Four Periods
Single residences					
September, 1933.....	4.9	3.4	2.6	2.3	3.6
September, 1932.....	5.1	3.1	2.9	4.1	3.9
September, 1931.....	4.4	2.3	2.4	3.1	3.1
September, 1930.....	5.4	2.5	2.6	2.9	3.6
Change, 1932 to 1933 (%).....	-3.9	+9.7	-10.3	-43.9	-7.7
Double residences					
September, 1933.....	12.1	9.6	5.2	4.5	9.4
September, 1932.....	11.3	10.9	8.9	6.6	10.4
September, 1931.....	10.9	5.9	4.0	3.8	7.1
September, 1930.....	12.3	6.9	4.0	6.0	8.1
Change, 1932 to 1933 (%).....	+7.0	-11.9	-41.6	-31.8	-9.6
Two-family residences					
September, 1933.....	7.5	8.6	3.0	0.0	7.2
September, 1932.....	8.9	7.5	2.3	8.3	8.4
September, 1931.....	6.9	7.5	3.1	10.7	7.0
September, 1930.....	8.6	8.2	3.1	2.5	8.1
Change, 1932 to 1933 (%).....	-15.7	+14.7	+43.5	-100.0	-14.3
Terraces					
September, 1933.....	16.1	17.4	10.1	3.0	16.5
September, 1932.....	15.9	16.6	8.7	6.7	16.0
September, 1931.....	14.1	11.7	4.3	0.0	12.9
September, 1930.....	18.2	14.4	4.3	0.0	16.5
Change, 1932 to 1933 (%).....	+1.3	+4.8	+16.1	-55.2	+3.1
Apartments (exclusive of rebuilds)					
September, 1933.....	14.6	15.6	13.9	9.2	13.2
September, 1932.....	16.2	21.1	18.4	11.8	16.9
September, 1931.....	16.8	15.1	14.7	12.0	14.5
September, 1930.....	17.2	13.9	12.9	8.6	13.1
Change, 1932 to 1933 (%).....	-9.9	-26.1	-24.5	-22.0	-21.9
Rebuilt apartments					
September, 1933.....	11.5	10.6	17.1	0.0	11.3
September, 1932.....	14.6	13.5	18.6	21.7	14.6
September, 1931.....	13.2	8.0	15.7	17.4	12.3
September, 1930.....	13.7	7.7	2.9	0.0	12.3
Change, 1932 to 1933 (%).....	-21.2	-21.5	-8.1	-100.0	-22.6
Residence shacks					
September, 1933.....	3.1	3.2	2.6	1.6	3.0
September, 1932.....	3.5	3.1	3.9	1.7	3.4
September, 1931.....	6.5	5.0	7.0	0.0	6.1
September, 1930.....	6.8	8.5	8.1	1.7	7.3
Change, 1932 to 1933 (%).....	-11.4	+3.2	-33.3	-5.9	-11.8
All types combined					
Change, 1932 to 1933 (%).....	-5.9	-10.5	-20.4	-33.8	-13.0

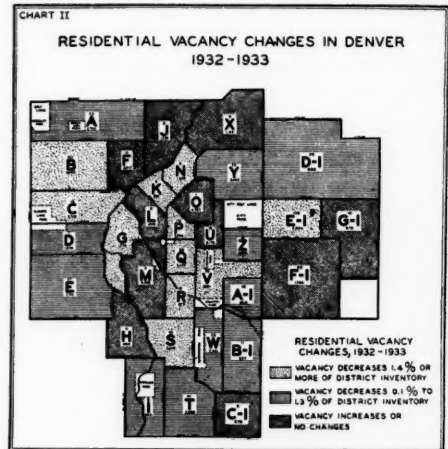
improvement in 1933 compared with 1932 than did the large living unit; and the former has the lower vacancy at the present time. Decreases in the percentage of vacancy from 1932 to 1933 were registered by all types of single residences except those having two stories and these percentages are all uniformly low. The same pattern describes the changes from 1932 to 1933 in the apartment group, but the percentages are all much higher than in the single residence classification. Double residences, as a group, also show a decline in vacancy although those of two stories or more had a larger vacancy in 1933 than in 1932. Terraces of all kinds had larger percentages of vacancy in 1933 than in the preceding year.

The trend toward the small living unit is well known. It is reflected in Denver's residential building for 20 years past. Although many of the older single residences have been remodeled as rebuilt apartments, there is still a relative oversupply of large living units.

Residential properties constructed prior to 1901 show a 6% decrease in vacancy between 1932 and 1933; those built from 1901 to 1915, a 10% decrease; from 1916 to 1925, 20%; and from 1926 to date, 34%. Moreover, the lowest vacancy among the four construction periods, for each of the residence types, is that of properties less than eight years old. This clearly indicates an increasing demand for homes of modern construction. It suggests that new building, carefully planned as to location within the city and as to type of accommodation, may be required.

The better residential sections of the City suffered heavy increases in vacancy during the two years ending September, 1932. At the same time there was a tendency for the poorer

sections to fill up. The change in this regard which took place during the year ending September, 1932, is depicted on Chart I. This trend has now been reversed; marked improvement has occurred during the past year, as shown on Chart II, in the vacancy situation of the better residential sections of the City. Table III summarizes the four-year vacancy record.



Figures underneath the district letters represent number of living units as of September, 1933; those above the letters, the number built during the two years ending September, 1933. Vacancy changes from September, 1932 to September, 1933 are shown by cross-hatching as indicated in the legend.

According to reports published by the United States Bureau of the Census, home ownership in Denver has increased steadily during the past three decades—from 28% in 1900 to 45% in 1930. Of 93 cities having populations in 1930 of 100,000 or more, only 34 are reported as having a larger percentage of home ownership than Denver. Thirty-seven of the 93 cities are shown in the 1930 Census as having smaller median rentals of rented homes than Denver and 21 as having smaller median values of owned homes.

These data on home ownership and rentals were supplemented in December, 1933, through a house-to-house canvass

in which the following questions,⁴ among others, were asked: (1) Do you own your home? (2) If not, what was your November, 1933, rental? Comparisons

TABLE III. INVENTORY AND VACANCY DATA BY DISTRICTS
(All residence types combined)

District	Number of Living Units 1933	Percentage Vacancies			
		1933	1932	1931	1930
A.....	2,724	3.4	4.2	2.5	3.2
B.....	6,402	4.4	5.8	4.0	3.8
C.....	2,740	8.9	10.9	7.7	10.0
D.....	1,874	2.3	3.5	2.8	4.9
E.....	2,714	1.6	2.5	3.3	3.7
F.....	3,017	8.5	8.5	7.4	9.1
G.....	1,278	4.5	6.3	9.3	12.4
H.....	464	4.7	1.5	4.4	5.4
I.....	965	4.0	5.3	4.1	4.6
J.....	1,235	2.9	2.0	6.3	6.6
K.....	831	6.5	9.8	9.8	12.5
L.....	1,248	8.7	6.8	12.6	11.2
M.....	6,558	7.7	7.7	6.5	7.2
N.....	1,438	7.8	10.1	9.7	12.3
O.....	4,707	11.0	10.8	7.7	12.8
P.....	5,034	13.9	16.0	12.8	10.9
Q.....	5,430	10.8	14.2	12.0	11.9
R.....	3,271	7.2	9.0	5.7	7.1
S.....	3,513	4.1	5.5	3.5	3.0
T.....	3,693	3.2	3.6	2.6	3.4
U.....	3,176	13.3	13.1	10.2	7.5
V.....	3,601	4.3	5.8	4.5	4.9
W.....	2,551	2.5	3.8	2.2	2.3
X.....	1,142	4.0	3.8	2.6	4.6
Y.....	3,403	5.2	6.3	6.4	3.8
Z.....	3,086	7.8	8.0	6.3	4.6
A-1.....	1,015	4.0	4.1	4.3	4.6
B-1.....	527	4.2	5.2	4.7	3.2
C-1.....	678	6.6	3.9	6.0	6.4
D-1.....	623	2.6	3.1	3.6	1.9
E-1.....	2,834	3.0	4.8	3.2	2.7
F-1.....	1,086	4.7	4.0	2.8	5.1
G-1.....	675	6.7	5.6	5.4	8.6
Total or average.	83,533	6.7	7.7	6.4	6.8

The median monthly rental in Denver, as reported by the Bureau of the Census for 1930, was \$29.59 per family unit; in November, 1933, it was \$21.10, or 29% less than in 1930. Of the families that rented their homes in 1930, 13% reported rentals below \$15 a month. In 1933 this number had increased to 27% of the total. Monthly rentals of \$50 or more were paid by 16% of the families in 1930 and by only 4.4% in 1933. The percentages by rental classes are shown in Table IV.

TABLE IV. RENTALS IN DENVER, 1930 AND 1933.

Rental Class	Number of Cases Expressed as Percentage of the Total	
	1930*	1933*
Under \$10.00.....	4.1%	8.9%
\$10.00—\$14.99.....	9.0	18.1
15.00—19.99.....	11.1	19.6
20.00—29.99.....	27.0	28.6
30.00—49.99.....	32.8	20.4
50.00 and over.....	16.0	4.4
TOTAL.....	100.0%	100.0%

*The cases for which rentals were not reported—only 2 or 3% of the total in each instance—were distributed among the rental classes in proportion to the number of reported cases in each of those classes.

Rentals per living unit are largest in the important single-residence districts to the east; they are lowest in the sections along the Platte River. The average ranges from \$43 a month in District E-1 to \$11 in District N. Because of the relatively small number of rooms per apartment and the services furnished by the landlord, such as heat and water, which occupants of other residence types pay for separately, the apartment-house districts show the largest rentals per room. This is true in

of the answers to these questions with the 1930 data shed further light upon the effect of the depression on real estate in Denver.

⁴A city-wide census of "Employment, Income, and Purchasing Power in Denver," in which approximately 86% of the City's families were reached, has been conducted as a civil works project under the direction of

the Bureau of Business and Social Research of the University of Denver. The questions on home ownership and rentals are a part of the questionnaire employed on this project. See *University of Denver Reports*, Vol. 10, No. 1, February, 1934, for a more detailed analysis of this phase of the data. According to present plans, other phases of the data will be reported upon at a later date.

spite of the fact that residential properties in other comparatively high-rent sections of the City are newer on an average than in the apartment-house sections. Table V presents the data on average rentals, relative importance and age of single residences, and home ownership.

Home ownership was limited in the recent city census to ownership by the head of the family, whereas according

to the Census Bureau's definition it includes ownership by any related member of the family. For this reason the difference of 4% between the 1930 and 1933 figures—45% in 1930 as compared with 41% in 1933—may not be a true measure of the decline in home ownership resulting from the depression. It is felt, however, that the lack of uniformity in the definitions accounts for only a small part of the apparent change

TABLE V. HOME OWNERSHIP, IMPORTANCE AND AGE OF SINGLE RESIDENCES, AND RENTALS IN DENVER, 1933

District	Percentage of Homes Owned	Single Residences, '33		Median Rental per Living Unit	Mean Rental per Living Unit	Average Number of Rooms per Living Unit	Mean Rental per Room
		Percentage of All Living Units	Average Age (Years)				
A.....	56.6%	88.9%	19	\$20.50	\$21.32	4.6	\$ 4.63
B.....	51.7	79.1	24	22.54	23.22	5.1	4.55
C.....	42.2	59.1	31	17.79	18.63	5.0	3.73
D.....	46.9	52.0	25	18.34	19.62	4.8	4.09
E.....	56.8	81.1	17	13.59	14.14	4.2	3.37
F.....	46.0	60.6	33	14.90	16.00	4.9	3.27
G.....	21.3	39.5	39	9.78	11.38	4.6	2.47
H.....	54.2	76.3	24	16.05	16.38	4.8	3.41
I.....	47.1	77.3	24	14.65	15.86	4.4	3.60
J.....	58.2	67.9	28	11.82	11.94	4.6	2.60
K.....	9.7	32.4	41	11.26	12.92	4.9	2.64
L.....	3.9	11.5	40	18.05	20.29	3.1	6.55
M.....	28.5	46.0	39	16.85	17.92	4.9	3.66
N.....	23.9	47.6	41	10.60	11.02	5.0	2.20
O.....	28.0	46.0	39	16.28	16.75	5.3	3.16
P.....	8.2	9.9	41	25.97	27.65	3.6	7.68
Q.....	13.8	14.9	36	32.11	34.34	4.0	8.59
R.....	41.7	57.3	29	25.40	27.10	5.4	5.02
S.....	48.6	74.7	24	23.50	24.26	5.3	4.58
T.....	54.8	89.8	16	22.24	22.73	4.7	4.84
U.....	30.5	35.5	35	29.24	31.07	5.5	5.65
V.....	56.0	68.4	18	40.39	42.45	6.6	6.43
W.....	63.6	87.9	14	34.38	34.26	5.6	6.12
X.....	51.4	66.8	32	12.97	13.44	4.5	2.99
Y.....	46.9	73.1	26	17.72	19.33	5.0	3.87
Z.....	45.8	62.7	25	33.64	35.89	5.9	6.08
A-1.....	58.4	82.3	19	18.88	21.79	4.6	4.74
B-1.....	55.9	94.9	10	24.25	25.09	4.8	5.23
C-1.....	54.9	84.1	15	25.54	25.96	5.0	5.19
D-1.....	64.0	97.1	14	37.20	37.65	5.9	6.38
E-1.....	68.3	93.2	14	40.79	42.77	6.5	6.58
F-1.....	64.3	93.2	12	36.08	35.94	5.6	6.42
G-1.....	52.8	92.4	11	19.25	20.76	4.3	4.83
All Districts.	41.2	59.6	25	21.10	23.71	5.0	4.74

during the three years and that a significant decline in home ownership has taken place.

Home ownership is lowest in the apartment-house districts and highest in the important single-residence sections of the city. Generally speaking, the greater the number of single residences in relation to the total of all living units in the district, and the younger the single residences, the greater is the home ownership.

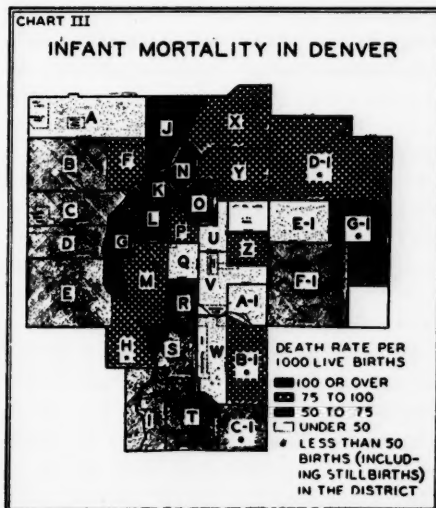
Infant mortality rates differ widely, as shown on Chart III, in the various sections of the City.⁵ Rates in the sections along the Platte River, which compose slum areas of one- and two-room shacks with poor sanitary facilities, are many times those in the better sections. The composite infant mortality of this area, comprising the five districts along the River which are shown in black, was 190 per thousand live births. Approximately $\frac{3}{8}$ of all residences in these districts were built prior to 1901. In two of them (G and K) the average age of all residences is 40 years.

Pneumonia and diarrhea and enteritis account for a large part of the excessive mortality, corroborating the contention that housing and sanitary conditions are important elements in the situation. The necessity for slum clearance is apparent—a problem made all the more acute by the tendency of localities in which conditions are bad to fill up during the depression. In recent years the City has done effective work along these lines.

The infant mortality rate registered by the negro population, 63 per thousand live births, is below the average for the

white population. The presence in the heart of the negro district of an active infant welfare station conducted by the Visiting Nurse Association probably accounts for this unusual showing.

Business vacancies are recorded in terms of the frontage of properties whose ground floors are unoccupied.⁶ The response to the depression has been similar to that of residences—a decrease in vacancy from 1930 to 1931, a sharp increase in 1932, and a small decrease (smaller than that of residential properties) in 1933. The central busi-



The rates shown are those among children born during the year ending February 28, 1931.

ness district, however, is to be contrasted with the outlying sections of the City. The former records an increase in vacancy each year, with the exception of the year ending September, 1932, while the latter shows improvement each year.

The tendency for businesses to move into properties with lower rentals is reflected in the central district as well.

⁵ The Bureau's study of infant mortality embraced, so far as possible, all children born in Denver during the 12 months ending February 28, 1931. The rates are expressed in the usual way—number of deaths under one year of age per thousand live births.

⁶ The compilation includes properties designated on the "Real Estate Appraisal" cards as stores, banks, office buildings, public garages, theaters, restaurants, and warehouses.

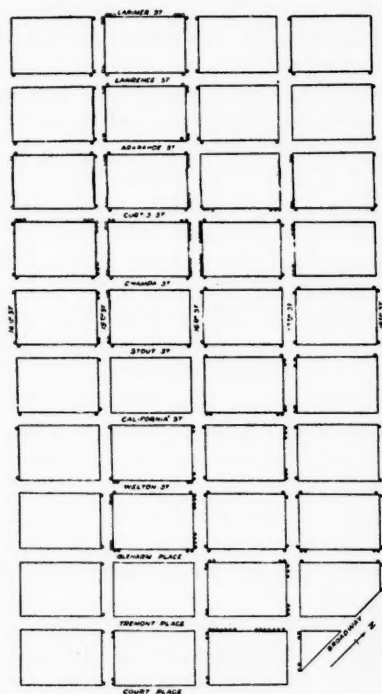
The high-rent section shows a vacancy increase each year, whereas there has been a tendency since September, 1932 for the fringe of this section to fill up.

The center of building activity in the central business district has moved in a southeasterly direction in recent years; that is, away from the "Union Station" side of the district toward the "Broadway" side. At the same time there was a tendency from 1926 to 1931 for pedestrian traffic to decrease on the Union Station side and to increase on the Broadway side. This is shown graphically on Chart IV. Generally speaking, business vacancies show *relative* improvement since 1930 on the Broadway side and the reverse on the Union Station side. Some correlation exists also between business vacancies and residential vacancies in the various sections of the City. There is a tendency for a change in business vacancy—increase or decrease over a period—to correspond to a similar change in residential vacancy.

By way of summarizing the vacancy trends in Denver since 1930 and the implications of the rental, mortality, and traffic flow studies from the point of view of the realtor, it may be stated that vacancies improved slightly during the year ending September, 1931, as a result of a subnormal amount of new construction at that time. In the course of the following year marked increases in vacancy occurred. Between 1932 and 1933, however, substantial improvement took place. Among the important residence types, the apartment showed the greatest improvement. Moreover, the larger vacancy declines have occurred in the newer properties. The mortality study reveals that the problem of infant mortality is greatest in the areas in which slum clearance is most needed. As a result of the depression and the

CHART IV

PEDESTRIAN TRAFFIC IN THE CENTRAL BUSINESS DISTRICT OF DENVER
SPRING, 1931, COMPARED WITH
SPRING, 1926



necessity on the part of many to find properties with lower rentals, the poorer residential sections have tended to fill up, making all the more acute the infant mortality problem in these areas. Because of decreased purchasing power during the past three years home ownership has declined and rentals have suffered heavy reductions. Finally, correlation has been indicated between trends in pedestrian traffic in important business sections and trends in business vacancies.

Unification of Passenger Transportation in London

By JOHN THURSTON

IN April, 1933, Parliament passed the London Passenger Transport Act¹ for the purpose of coordinating, under public ownership and operation, the multiplicity of agencies which had grown up for the carrying of persons in London and its environs. Before the Act this service was performed by some 89 subway, street car, omnibus, and motor coach operators, most of them private but several administered by municipal authorities, including the London County Council, the Middlesex County Council, and other local boroughs and districts.

Since the days of James I, if not earlier, London has been troubled with the problem of passenger transportation; until the present Act no real answer has been offered. The record has been one of planless introduction of small, uncoordinated services in an effort to draw profit from the needs of a growing city, of uncontrolled competition, inefficiency and inconvenience of service to passengers, and of financial difficulties.² Within the past half century attempt at consolidation has been made with increasing success, as evidenced by the acquisition of competing street car lines within the County of London and their operation by the London County Council and by the beginning of the Underground Group in 1902, its gradual expansion, and its absorption of the General Omnibus Company in 1912. But integration was very far from complete and the Underground Group,

municipal tramways, and independent operators continued to compete while Parliament appointed committees and commissions in profusion to seek a remedy.

In 1929 the London County Council proposed a plan for a certain amount of coordination of its tramways with the Underground Group and application was made to Parliament for the necessary act. Mr. Herbert Morrison, Minister of Transport in the Labour Government then in office, proposed instead a plan for complete consolidation and in 1931 introduced a bill which, with amendments not vitally changing its character, was carried into law by the present National (Conservative) Government.

The Act creates the London Passenger Transport Board and charges it with the broad duty of securing "an adequate and properly coordinated system of passenger transport for the London Passenger Transport Area," while avoiding the provision of "unnecessary and wasteful competitive services." For this purpose the Board is given power to acquire and operate existing passenger transport services and to provide new facilities and to do "all other things necessary for the convenient and efficient working of their undertaking." Part II of the Act provides in detail for the transfer of the property of the former operators to the London Passenger Transport Board. Thus the Board is not a regulatory but an operating agency.

¹ 23 Geo. 5, Chap. 14.

² See Sir Robert Donald, "The Story of London Transport" in 9 *Public Administration* 377-387 (October,

1931) and 10 *Ibid.* 120-5 (April, 1932); Herbert Morrison, *Socialisation and Transport* (London: Constable & Co., Ltd., 1933), Chap. 1.

In addition, provision is made for coordination of the services of the Board and of the four railroads running into London by means of a standing joint committee of the Board and the railroads to deal with through bookings, through routings, etc., and to provide a scheme for pooling passenger receipts. The Board is also given power to operate passenger boats on the Thames, a service hitherto unsuccessful.

Within its area the Board has a virtual monopoly of passenger transportation, with the exception of taxicab and private contract carrier service. This area is the region within a radius of about 25 or 30 miles of Charing Cross, containing about 1,800 square miles and a population of over nine million persons. The County of London is merely a small core of the London Traffic Area and the boundaries of the latter reach some 12 miles, on the average, beyond those of the Metropolitan Police Area.³

The Board is a public or government corporation, with the power, in addition to that of purchasing and holding property, of issuing its own securities. This fact has greatly facilitated the solution of the problem of compensating the former operators, which is accomplished for the most part by merely exchanging the securities of the Board for those of the former operators. The amount of compensation is determined by agreement, apparently on the basis of probable future earnings,⁴ or, failing agreement, by an arbitration tribunal of three members appointed by the Lord Chancellor. Several classes of securities are provided, bearing interest at $4\frac{1}{2}\%$ and 5% ; there is also a class called "C stock" with a "standard" rate of interest of 5% for the first two years

and $5\frac{1}{2}\%$ thereafter, but with the provision that, if in any year the Board has a surplus, half of the surplus is to be applied to step the interest rate up not more than $\frac{1}{2}\%$ of 1% . "C stock" may be redeemed at the discretion of the Board after 1955 or may be purchased and retired, but there is no requirement that it shall be redeemed. Other classes of securities issued for purposes of compensation may be redeemed after 1965, 1975, and 1985, respectively, and are required to be redeemed within 90 years, although refunding at the expiration of that time is probably permissible.

Principal and interest are guaranteed by the Treasury (i. e., the Government) on only £12,583,000 of securities and this, it appears, only because the securities which they replace were guaranteed by the Treasury under earlier acts. By far the larger part of the Board's issues are not guaranteed. But security holders may apply for the appointment of a receiver if the Board defaults on its interest payments, although holders of "C stock," on which alone there is any real danger of default, may not so apply before 1938.

Power is also given the Board to borrow money for the provision of working capital and the undertaking of new capital improvements and for temporary purposes, the total amount of borrowings over and above those involved in the compensation of former owners being limited to £13,000,000 plus the amount the London Electric Railway Company, the Metropolitan District Railway, and the Central London Railway Company were authorized to borrow under earlier acts.

There is no stock in the American sense, carrying with it rights of ownership and management.

³ See map, 73 *Tramway and Railway World* 177 (April 13, 1933).

⁴ See Morrison, *op. cit.*, p. 255.

The London Passenger Transport Board, which is essentially the board of directors of the corporation, consists of seven members, one of whom serves as chairman. The members are appointed by a body of "Appointing Trustees" composed of the following:

The chairman of the London County Council

A representative of the Advisory Committee (described below)

The chairman of the Committee of London Clearing Bankers

The president of the Law Society

The president of the Institute of Chartered Accountants in England and Wales

When filling vacancies subsequent to first appointments to the Board, the chairman or some other member of the Board.

The members of the Board are to be

"persons who have had wide experience, and have shown capacity, in transport, industrial, commercial or financial matters or in the conduct of public affairs and, in the case of two of the members, shall be persons who have had not less than six years experience in local government within the London Passenger Transport Area."

Members of the House of Commons are ineligible, but not members of the House of Lords. Members of the Board are not to own securities of any transport undertaking in the London Transport Area, but are not prohibited from having an interest in contracts made by the Board, though they may not vote on decisions respecting such contracts.

All employees are appointed and their compensation determined by the Board. Employees of the former operators were transferred to the Board and detailed provision is made in the Act for safeguarding the rights of such transferred employees; but the Board may abolish any existing position providing it compensates the employee for direct pe-

cuniary loss. The Act contemplates negotiations regarding wages and conditions of service between the Board and trades unions representing employees of the Board—namely, the National Union of Railwaymen, the Associated Society of Locomotive Engineers and Firemen, and the Railway Clerks Association. In the event of failure to agree, provision is made for reference of the question to a Negotiating Committee of six representatives of the Board and six representatives of the employees, appointed by the three trades unions, and finally to a Wages Board consisting, in addition to the personnel of the Negotiating Committee, of an independent chairman named by the Minister of Labour and four persons named, respectively, by the General Council of the Trades Union Congress, the Cooperative Union, the Association of British Chambers of Commerce, and the National Confederation of Employers' Organizations. Further, there are to be councils something on the order of the Whitley Councils in the British Government, consisting of officers of the Board and representatives of employees. Agreements have been made between the Board and the Transport and General Workers' Union providing for negotiation of labor disputes, and the Board clearly favors such negotiation rather than the use of strikes.⁵

No uniform plan is made for retirement and benefit payments to employees; instead the retirement plans of the former operators are continued.

While on the whole the Board has wide discretion to manage its affairs, there are certain checks on that discretion. Any member of the board may be removed by the Minister of

⁵ Lord Ashfield, chairman of the Board, quoted in the *London Times*, August 4, 1933, p. 10. This state-

ment of policy was made in connection with a minor sympathetic strike of about 100 employees of the Board.

Transport, after consultation with the Appointing Trustees, for inability or misbehavior. Security issues of the Board are subject to regulations made by the Minister of Transport with the approval of the Treasury. Annual reports are to be made to the Minister of Transport and laid before Parliament. The Minister of Transport may prescribe the form of the annual statement of accounts of the Board and the accounts are to be audited by auditors appointed by the Board with the approval of the Minister of Transport.

Rates of fare are established initially by the Board and in general are to be sufficient to defray all expenditures; that is, the Board is to be self-supporting. But rates are subject to revision by the Railway Rates Tribunal (a regulatory body somewhat similar to our Interstate Commerce Commission), and local authorities may apply to the Tribunal for a revision of rates. Likewise, local authorities may protest curtailment of services or ask for provision of new services and the Tribunal may issue an order determining what is to be done. The Board is subject to police regulations of the traffic and police commissioners of the metropolitan area, these regulations being under the general control of the Minister of Transport. Strangely, no provision is made as to taxation, but the Board will undoubtedly be subject to the ordinary local and national taxes.

Finally, an Advisory Committee is set up with the duty of advising both the Minister of Transport and the Board regarding matters pertaining to passenger transportation in the London Traffic Area. The Committee consists of 40 members intended to be representative of the Government, counties and boroughs within the London Traffic Area, the police, the London Passenger

Transport Board, the railroads, labor, and taxicab and horse-drawn vehicle interests. Joint meetings of the Board and the Advisory Committee or representatives of the latter are to be held for purposes of discussion at least three times a year unless both agree that a meeting is not necessary. The Committee or members of it may hold public inquiries with power to require the attendance and testimony of witnesses.

In May, 1933, the Appointing Trustees named the members of the Board, as follows:⁶

Lord Ashfield, chairman; formerly general manager of Detroit United Railways, Detroit, Michigan; general manager, chairman, and moving spirit of the Underground Group since 1907; full time; term, seven years.

Frank Pick, managing director of the Underground Group, with which he has been associated since 1906; full time; term, seven years.

John Cliff, assistant general secretary of the Transport and General Workers' Union; part time; term, five years.

Patrick A. Cooper, director of the Bank of England and governor of Hudson's Bay Company; part time; term, five years.

Sir John W. Gilbert, alderman, London County Council; part time; term, three years.

Sir Edward Holland, alderman, Surrey County Council; part time; term, three years.

Sir Henry Maybury, chairman of the Advisory Committee; part time; term, three years.

Thus, in addition to selecting three men experienced in problems of passenger transportation, the Appointing Trustees, as the *London Times* pointed out, attempted to give representation to local authorities, to capital, and to labor. Salaries of the members of the Board were fixed by the Minister of Transport after consulting with the Appointing Trustees and with the con-

⁶ *London Times*, May 19, 1933, p. 7.

sent of the Treasury at £12,500 for Lord Ashfield, £10,000 for Mr. Pick, and £750 for the other members, all subject to a temporary deduction of 7½%.⁷ Certain conditions were attached to the appointments. Lord Ashfield was permitted to retain the three directorships he then held but may not accept new directorships without consent of the Minister of Transport. Mr. Pick is not to accept any other paid directorship or appointment or to engage in any work which would conflict with his duties on the Board. Mr. Cliff was required to cease participating in the activities of the Transport and General Workers' Union.

On July 1, 1933, the Board took over the property of the former operators, representing a total capital of about £120,000,000, with some 11,430 passenger-carrying vehicles and 71,900 employees. The Board appointed a secretary and treasurer, a comptroller and accountant, four general managers for subways, omnibuses, and tramways (two areas), two operating managers, a commercial manager, and a publicity manager. Thus organized, it started on its difficult task, at a rather unfavorable time, with traffic falling and receipts not sufficient to sustain capital expenditures⁸ and with an extremely narrow margin, on the basis of probable receipts, between interest payments and receivership.⁹

Viewed only with respect to its probable effects on passenger transportation in and about London, the Act will very likely lead to betterment of service and to reduction of costs. That convenience to passengers will be promoted, by facilitating transfers between formerly

competing lines, by better routing and timing in accordance with an integrated plan, and by relocation of stops and stations, seems hardly open to question and already much has been done in these directions. The advantages of unification will be readily apparent to Americans living in cities where street car and bus facilities, as is so often the case, are under different managements.¹⁰

Improvements in service by the Board no doubt will sometimes mean increased costs, as where under the planlessness of former years stations were located where they should not have been and now must be moved or where better equipment is provided or more frequent runs are made. In many other instances, however, such as reroutings and the discontinuance of superfluous competing lines, service improvements may mean better use of existing facilities without increased cost or even with decreased costs. Considerable savings in purchasing through quantity orders and standardization of equipment may be expected, and likewise some degree of saving in financing and in general administrative expense. We may further expect a decrease in the cost of governmental regulation which would have been increasingly necessary had passenger transportation remained in private hands.

A less immediate result may be the turning of attention to street improvements, particularly street widening, and to street and city planning generally as it affects traffic in the whole London Traffic Area. Already Lord Ashfield has indicated that the creation of the new Board is a signal for attack upon

⁷ *Ibid.*, May 23, 1933, p. 8.

⁸ Lord Ashfield in the *London Times*, July 1, 1933, p. 9.

⁹ 116 *Economist* (London) 29 (January 7, 1933).

¹⁰ Boston is one of the outstanding examples in the United States of integrated facilities. The Boston Elevated Railway, serving the city and a large surrounding area, resembles the London Passenger Transport Board in many respects.

these problems.¹¹ This may lead to treating the London Traffic Area as a unit for planning purposes and may ultimately have great influence on the governmental organization of the whole metropolitan area.

As a development in the field of public administration, the Board is of particular interest. In the absence of any local government having a suitable area of jurisdiction, it was obviously necessary to set up some kind of an *ad hoc* body. Influenced probably by the examples of the Port of London Authority, the British Broadcasting Corporation, and the Central Electricity Board, all of which are instances of the application of the business corporation to public enterprises, the Government decided to make this body a corporate body more or less independent of existing governmental authorities.

The government corporation has certain advantages as a form of organization for the public operation of economic enterprises, the chief of these advantages being flexibility. That is, the government corporation can adjust itself quickly to the needs of the situation. It does not necessarily require appropriation by the legislature to enable it to begin or extend operation since it can raise funds as needed by the sale of its own securities without increasing the indebtedness of the government proper. Nor, since it can obtain sufficient revenue by the sale of its services to meet its expenses, does it require yearly appropriations with all the restrictions of legislative procedure and Treasury supervision which have been developed to safeguard public expenditures. Again, it is free from civil service examinations, rules, and regulations and can

vary its organization of personnel at will. Finally, it has nearly the same broad set of legal attributes as private corporations, such as the power to sue and be sued, hold property, and enter into contracts, which have been found indispensable to the operation of private corporations and which have been determined and defined by the growth of the law and are well known to business practice.

All these things, however, are found also in the earlier government corporations in England. But the London Passenger Transport Board represents a distinct innovation in one respect, that is, in the method of appointment of the board of directors. The possible methods of selection that readily occur to one are appointment by the government proper, i. e., the cabinet or a minister, or election by consumers, employees, or other affected interests, or a mixture of these methods. In the case of the London Passenger Transport Board, while the original bill provided for appointment by the Minister of Transport after consultation with the Treasury, the Conservatives introduced the new plan of having a body of ex-officio appointing trustees. The purpose of this method is to remove the operation of the Board from the possibility of interference from party politics. It is not a new device; we have examples in this country of its use in the designation of judges, university presidents, etc., to make certain appointments where it is desired to minimize political considerations. To this method of appointment two objections have been made. First, the appointing trustees are not familiar with the problems and personnel of passenger transportation.¹²

¹¹ "London Passenger Transport and Street Congestion," 73 *Tramway and Railway World* 179-181 (April 13, 1933).

¹² William A. Robson, "The Progress of Socialization in England," 11 *Foreign Affairs* 509-10 (April, 1933); (Footnote 12 continued on page 135)

This objection does not seem to be of great importance, so far as one can judge from the first appointments to the Board. The second criticism is that this mode of appointment removes the possibility of adequate public control and destroys effective responsibility.¹³ In this criticism there is considerable merit. Probably ministerial responsibility for the actions of a government corporation ought not to be entirely avoided, for while independence in day-to-day administration of such a corporation is necessary for efficiency, that very independence makes necessary some ultimate check on broad questions of policy. This is the position that has been taken by the Postmaster General for the conduct of the British Broadcasting Corporation—that he will answer in Parliament on important matters of policy but will not hold himself accountable for the Corporation's action on matters of routine management. Nor does experience with the British Broadcasting Corporation and the Central Electricity Board, to both of which appointment is made by a minister, show much ground for suspecting any danger of political interference.

Of even wider significance is the relation of the Act to the political alignment and the programs of the two major parties in England. Here we are met by the difficulty of determining whether a corporation like the Board is in reality a socialistic undertaking or an ingenious device for giving greater protection and benefit to private property. It is true that the securities holders have lost control of management of the proper-

ties, but the public can hardly be said to have acquired control of management unless the Appointing Trustees are somehow conceived as trustees of the public. At the same time the securities holders, though their returns are limited, have definitely benefited by the stronger financial position of the Board and the probability that it will be able to meet interest payments.

While the *Spectator* speaks of the Act as the first example of an industry reaching a high degree of development under private management and then passing easily into the domain of the state and says that "here is Socialism with its terrors exorcised"¹⁴ and while the *Economist* speaks of the properties as passing from private to public ownership,¹⁵ it seems to me, in view of the fact that the government does not have control through the direct appointment of the directors, that the question of whether the Board is socialistic in principle will depend upon whether or not the Board adopts the policy of amortizing its securities and financing itself out of earnings.¹⁶ If this is done, ultimately the only beneficiaries will be the users of the Board's services; otherwise, the activities of the Board will continue to support a class in the state who, in so far as they receive interest, live by virtue of ownership rather than effort.

The explanation of how it was possible for the Conservatives to pass a Labourite bill is probably to be found in the fact that, by the establishment of the Board, on the one hand the public gained some measure of control and consumers were promised improvements in service, while on the other hand investors were given

(Footnote 12 continued from page 134)

"London Transport Bill," 116 *Economist* (London) 28 (January 7, 1933). The *Economist* thought the Minister of Transport would as a matter of fact have a voice in the appointments through consultation with the appointing trustees.

¹³ Morrison, *op. cit.*, pp. 157-162; Robson, *op. cit.*

¹⁴ "An Experiment in Socialism," 151 *Spectator* (London) 5 (July 7, 1933).

¹⁵ 116 *Economist* (London) 755 (April 8, 1933).

¹⁶ See Morrison, *op. cit.*, pp. 277-279.

greater security. This circumstance, together with the fact that it was the Conservatives who set up the British Broadcasting Corporation and the Central Electricity Board, suggests that the two parties may not be so far apart as is commonly supposed and that it may be possible to impose social control and rational planning upon industry in England by gradual agreement upon objectives without resorting to revolution and dictatorship. As a Conservative M. P. said not long ago, "We are all socialists now."

For all this, it remains that leaders

of the Labour Party have turned to the government corporation as providing the best means for carrying out their program of socializing all the basic industries of the country¹⁷ and in this they go considerably beyond the concessions which the Conservatives have thus far been willing to make.

Meanwhile London passenger transportation seems due for a good deal of improvement.

¹⁷ H. B. Lees-Smith, "British Labor's New Program," 38 *Current History* 22-8 (April, 1933); Morrison, *op. cit.*, especially Chaps. VIII and IX; Robson, *op. cit.* pp. 511-12.

Recent Developments in Methods of Real Estate Tax Equalization in Wisconsin

By J. ROY BLOUGH

DURING the early years of the century a systematic procedure for using real estate sales prices in arriving at equalized values of real estate was developed by the Wisconsin Tax Commission and became widely known and copied. During the past 10 years the methods employed have undergone a marked evolution, so that the procedure today is substantially different from that of the earlier period. This article endeavors to describe and explain these recent developments.

The Place of Real Estate Equalization in the Wisconsin Assessment System

The process provided by the Wisconsin statutes for securing equality of taxation for the pieces of taxable property in each taxing jurisdiction of the State consists of four steps. (1) General property taxes to be raised for state-wide purposes are levied on the several counties in proportion to the total full taxable value of general property in each county. (2) The share of the state-wide taxes thus levied which each county must raise plus taxes for county-wide purposes are levied on the several taxation districts of the county in proportion to the total full taxable value of the general property in each district. (3) The share of the state-wide and county-wide taxes thus levied which each taxation district must raise plus taxes for local and school purposes are levied on different pieces of taxable general property within the district in proportion to the full taxable value of each such piece of property. (4) The average rate which the total taxes

levied on general property in the State constitute of the total full taxable value of such property is the rate applied in taxing "special property," which consists of the property and franchises of steam railroads and of practically all other public utilities taxed on their value.¹ The manner in which this plan operates is briefly surveyed in the following paragraphs.

When the local assessor, who is under Tax Commission supervision, has completed his assessment, it is reviewed and corrected by the local board of review and is then final so far as the local authorities are concerned. Further review by the Tax Commission may be secured either in the form of a revaluation of specific properties upon petition of their owners, or in the form of a reassessment of all general property in the district upon petition of the owners of at least 5% of the assessed value of the property. The Commission in its discretion may grant or withhold the relief requested but has no power to institute a review on its own motion.

The local assessment as reviewed and corrected is the base on which all general property taxes for all purposes—state, county, local, and school—are computed and levied. However, as there is no assurance that all taxing districts will be assessed at full value or at the same percentage of full value, the state and county taxes are not directly computed as rates on the local assessment. Such a procedure would discriminate against well assessed districts

¹ Wisconsin Statutes, 1931, Chapter 70, especially sections 70.47, 70.57, 70.74-70.85.

and would stimulate competitive underassessment. To adjust for differences in assessment ratios the state property taxes are apportioned among the counties for collection on the basis of a valuation of the several counties arrived at independently by the Tax Commission. This valuation is technically the "state and county assessment," commonly and hereafter referred to as the state assessment. The amount of state taxes, if there is a state levy, to be collected in any county is determined by applying to the total state levy the percentage which the value of the property of that county bears to the total state assessment.

In similar fashion the state taxes which the county must raise together with the county tax levies are apportioned for collection among the taxation districts of the county on the basis of a valuation of the total property of each district by the county board of supervisors. In making this unit assessment of each taxation district the county board is assisted by the Tax Commission through its district supervisor of assessments² who submits to the board "recommended values" for each taxation district. The board may or may not accept these recommendations. In recent years an average of more than 60 of the 71 counties have accepted these values and to this extent the Tax Commission's values have become the county boards' values.

If any taxation district is dissatisfied with the proportion of county taxes which it is called upon to pay, it may petition the Tax Commission for what is commonly known as a "re-equalization," which is a redetermination by

the Commission of the relative value of the total general property in each district of the county.

The Tax Commission directly assesses all special property, that is, railroads and public utilities, which constitutes about 1/10 of the property subject to ad valorem taxation.³ Special property is not apportioned among taxation districts or placed on the local tax rolls to be taxed at local tax rates, but, regardless of location, is taxed on a state roll and at an "average state rate." The average state rate is determined by dividing the total general property taxes levied in the State by the state assessment of general property as made by the Tax Commission. This average state rate is applied of necessity to the following year's assessment of special property. Assuming that the Tax Commission's state assessment of general property and its assessment of special property are at the same ratio of full value, the total tax burdens of general property and of special property are equalized, although not in the same year and not in any specific taxation district.

Thus the duties of the Tax Commission in the property assessment system are fivefold: to instruct, supervise, and assist local assessors; to revise the local assessment on the appeal of property owners; to determine the total values of real estate and of personal property in each taxation district, in each county, and in the State; to ascertain the total general property taxes levied in the State and to compute the average state rate; and to assess special property and compute the taxes on such assessments.

of Incomes" or a deputy, and was an employee of the Tax Commission. During the last two or three years of this period he was unofficially called "Supervisor of Assessments" and the 1933 Legislature made this an official title.

³ Wisconsin Statutes, 1931, Chapter 76.

²The term "supervisor of assessments" is used throughout in referring to the person performing the functions here described. From 1901 to 1911 he was a county official and bore the title "Supervisor of Assessment." From 1911 to 1933 he was entitled "Assessor

The process of determining the total values of real estate in each taxation district, in each county, and in the State, and of employing these values is commonly referred to in Wisconsin as real estate equalization.⁴ The methods employed in the process constitute the subject matter of the remainder of this paper.

The Sales Ratio Method of Real Estate Equalization

The Wisconsin statutes provide that "real property shall be valued . . . at the full value which could ordinarily be obtained therefor at private sale."⁵ The generally accepted meaning of this provision is the price at which the property can be sold and resold for money in the manner and at the terms commonly prevailing, which meaning is very similar to that of commercial market value. The value standard and any methods for arriving at it must rest ultimately on sales prices, actual or hypothetical, if assessments are to be upheld by the courts.

Not all property to be assessed is sold in any one year or over a period of years and not all sales prices are identical with the statutory assessment standard. Some method must be devised whereby the value of unsold property may be deduced or imputed from the value of sold property, and whereby the actual sales price of sold property may be related to the statutory assessment standard. The local assessors' problem is to determine the standard and to apply it to individual pieces of property. The Tax Commission also faces this problem but in equalization is confronted with the related problem of applying

the standard to the real estate of entire taxation districts, entire counties, and the entire State.

The method adopted in Wisconsin about 1903 and used for many years in attacking this latter problem was the so-called "real estate sales method," which might more logically have been called the "sales ratio method." This method underwent certain relatively minor developments during the period of its use. In the decade prior to 1925 the method generally used was in brief as follows: At the close of each year the facts concerning all recorded sales of real estate which took place during the calendar year were copied on cards. These cards were then carefully studied in order to weed out sales of certain types in which the sales price would probably not be representative of the statutory assessment standard—for example, sales to close relatives. In the case of each of the remaining sales an attempt was made to verify the accuracy of the recorded sales price by interviewing the attorney handling the sale or by sending questionnaires to the buyer and seller. The assessment of the property sold was then recorded from the assessment roll and a check made to determine if the assessment covered exactly the same property as did the sale. Sales which came out of this careful process of examination with no indication that the sales prices were not representative of the statutory assessment standard were accepted for further use, while the remainder were discarded. The accepted sales in each taxation district were then assembled and the assessments added. The sales prices were likewise added. A ratio was computed by dividing the total of the assessments by the total of the sales prices. The total assessment

equalization and the term is a convenient one.

⁵ Wisconsin Statutes, 1931, Section 70.32.

⁴ The term is not strictly accurate in this connection as equalization ordinarily connotes revision of the assessment itself by a reviewing body. However, the effects of the process are substantially the same as

of all real estate in the taxation district in the year was then divided by this ratio. The result was a "single-year sales value." To counteract inaccuracies in the assessment ratio arising from the small amount of property sold and to eliminate the resulting fluctuations in the single-year sales values, the latest five single-year sales values were averaged and this average accepted as the "true value" of the real estate of the district. Thus, for example, the true value for 1924 was based on the sales, assessments, and single-year sales values of 1919 to 1923, inclusive.

The true values for all taxation districts of the county were added to arrive at the true value for the county, and the true values of the counties were added to arrive at the true value for the State. These values for the counties and the State were adopted by the Tax Commission as the state assessment of real estate.

As indicated in a previous paragraph, there are two equalizations of general property, the state assessment made by the Tax Commission and the "county equalization," or unit assessment of taxation districts, made by the county boards upon recommendation of the supervisors of assessments. Prior to 1911 the two equalizations were almost entirely separate. Beginning in 1901 a county supervisor of assessments was appointed by the county board of supervisors in each county. This supervisor of assessments was under the general supervision of the Tax Commission but that body did not have direct control over him. He made his own recommendations to the county board and these were not subject to change by the Commission except in case of an appeal for a re-equalization.

⁶ *Proceedings of the Eighth Annual Meeting of the Supervisors of Assessment of the State of Wisconsin,*

In 1911 the state income tax law was passed, the county supervisors of assessments were given the added duty of assessing individual incomes, were renamed assessors of incomes, and were made employees of the Tax Commission. As the Commission allowed them a considerable degree of autonomy, the dual system of recommended values to county boards by the supervisors of assessments and a state assessment made by the central office of the Commission continued. These two sets of values often bore only a distant resemblance to each other because the sales to be included and excluded were chosen once by the assessor of incomes and a second time independently by the central office of the Commission. The Commission was thus responsible for two sets of values which might vary widely although representing the same thing.

Changing Attitudes toward the Sales Ratio Method

In the early years of its use, the supervisors of assessments did not accept the sales method for their equalization work without resistance. Each year at the annual meeting of supervisors of assessments the Commission endeavored to educate them to its merits but, although a growing majority favored it, there was always vigorous dissent. It was objected that the sales were too few in number to give a reliable sample,⁶ that the assessments were not sufficiently uniform to use the ratio method, that some types of property were not represented in the sales ratio because rarely sold, and that there was no fundamental difference between the sales method and the appraisal methods used by some of the super-

1909, especially pp. 51-52. See also *Proceedings of other years.*

visors,⁷ as the exercise of judgment of property values was necessary in both. The criticisms came from many parts of the State but chiefly from the supervisors of northern counties having a considerable acreage of timber and cut-over land.

In the face of these criticisms the Commission steadfastly maintained that for the great majority of districts the sales method was best both because of its uniformity and the relative accuracy of its results and because its objectivity and its direct relation to sales yielded values which would command greater respect than any values based on the judgment of the supervisor.⁸ However, the Commission did not claim infallibility for the method and recognized the necessity for special methods under special circumstances.⁹ The supplementing of sales by inspections and appraisals was recognized as necessary and desirable in some cases.

Dr. T. S. Adams, then of the University of Wisconsin, made a study of the operation of the sales method and presented his conclusions to the supervisors in 1910.¹⁰ He pointed out that the magnitude of the task of obtaining "accurate results for each of the seventy-one counties, and fairly accurate results for each of the one thousand five hundred odd assessment districts, is somewhat overpowering," and that "evidently it can only be worked out by some more or less mechanical system." The sales method, he said, is not sacred, although used in a large majority of the counties and assessment districts. Its function is not to determine value but to supply evidence which assists the Commission

in determining values. He defended the sales method against the criticism that a large amount of inaccurate data is likely to creep in by pointing out that great care was used by the Commission and that even without such care the results in a large majority of cases are surprisingly near the truth. To a second criticism that the sales samples are not representative he replied that his experience and study convinced him that only rarely, when the sample was very unrepresentative and the assessment very irregular, was the error significant and even then it was surprisingly small.

Dr. Adams' analysis was supported by others who had given time and attention to the matter. Little record appears of opposition by supervisors after 1910, although this may have resulted from the change in their status.

The pre-war years may thus be characterized as the period of development and acceptance of the sales method as the standard method of equalizing real estate among taxation districts and counties and of arriving at the state assessment. At no time was the method used without some exceptions, but there is reason to believe that as years passed the method hardened into an institution, accepted with great faith by those who were using it, and making alteration difficult when different leadership in a period of new conditions attempted to effect changes.¹¹

New conditions followed the war. In 1921 rural land values began a decline which has not yet been halted, while urban land values after a break again started upward and continued to rise throughout the decade of the twenties.

⁷ *Ibid.*, p. 34.

⁸ *Ibid.*, pp. 104-106; *Report of the Tax Commission*, 1914, p. 41; *Report*, 1916, p. 12, etc.

⁹ *Report*, 1914, pp. 40, 41.

¹⁰ *Proceedings of the Ninth Annual Meeting of the Supervisors of Assessment*, 1910, p. 14ff; previously

published in *Papers and Proceedings of the First Annual Meeting of the Minnesota Academy of Social Science*, 1908, Vol. 1, No. 1.

¹¹ This impression is based on conversations of the writer with assessors of incomes and members of the Commission.

With the decline in rural values came a marked decrease in the number of sales of rural real estate. Such sales as did take place were for the most part liquidation sales of one kind or another, which were forced upon the seller and which did not represent the market value of the property, assuming a willing buyer and willing seller. The number of usable sales declined perilously close to zero throughout the rural parts of the State and in an increasing number of taxation districts there was not a single sale which could be accepted as representative. Diversification of rural property was increasing with the growth of summer resorts and suburban real estate developments and these dominated the sales ratios although often assessed at markedly different ratios from the unsold surrounding farm land. Cut-over land which formerly had an active market for anticipated agricultural development came to be recognized as having no prospects of settlement and fell to almost zero in value with no buyers. In cities a growing proportion and volume of property were sold on the installment plan at prices indeterminately higher than cash prices, and the sales ratios were dominated by the vacant lots and small residences of real estate subdivisions. Meanwhile, although the volume of state taxes declined and in some years was zero, county taxes more than tripled from pre-war years, so that accuracy in the equalization of assessment districts was much more important than when the tax burden was light. Furthermore, high tax rates made the equalization with railroad and public utility property likewise more important.

These changes in economic conditions

brought into bold relief the defects in the sales method recognized in the pre-war years but then dismissed as relatively inconsequential. Leadership in calling attention to the relation of the new conditions to equalization methods was taken by Commissioner Charles D. Rosa, who was appointed to the Commission in 1921. Judge Rosa's observations of the workings of the sales method had begun before he went on the Commission.¹² After several years of further study he presented a paper to the 1925 meeting of Assessors of Incomes on the subject, "The Wisconsin Real Estate Sales Method of Equalization."¹³

In this paper he recognized that the sales method produced good results in a great many cases but he maintained that in numerous instances the results were very bad. He presented a number of examples to show that the single-year sales values fluctuated very widely from year to year in many taxation districts and he reasoned that the average values computed from such single-year values could not be trustworthy. He contrasted value figures arrived at by the sales method with widely different value figures obtained by reassessment and in other ways. He then proceeded to attack certain assumptions of the sales method. Although recognizing that sales must be the basis of value he condemned the notion that the sales ratio method is the only method of using sales. He distinguished the price at which real estate *has* sold in a particular instance from the statutory assessment value, which is the price at which it would *ordinarily* sell, and condemned the practice of using sales, when there was apparently nothing wrong with the

¹² Letter from Judge Rosa to the author; also conversations.

¹³ Rosa, Charles D., *The Wisconsin Real Estate Sales Method of Equalization*, 1925.

circumstances of the sale, without appraising the property to determine if it would resell for the sales price. He also attacked the assumption that the ratio of assessed to sales value is the same in the sold as in the bulk of unsold property. He pointed out that the volume of sales was insufficient in most jurisdictions to furnish an adequate sample, and that often the addition or subtraction of one sale would greatly change the result. He also insisted that some classes of property, e. g., lake frontage, timber, and manufacturing properties, are usually assessed at ratios widely different from those applied to other types of property and that different types or classes are not represented to the same degree in the sales; thus sales ratios are applied to classes of property which are not assessed at the same ratio as the class in which the sold property was located. He condemned the use of the average of several years for its grotesque results and serious discrimination against rural areas.

To remedy these evils he recommended that property be classified by use and that sales ratios for such classes be applied only to the class of property from which they were obtained; that, where there is a complete absence or insufficient volume of sales within a class, values should be established by appraisals or by estimates of informed people; that sales be carefully "fielded" to determine whether the sales price corresponded to the statutory standard for assessing real estate; and that the judgments of different supervisors of

assessments be coordinated and standardized by a field agent and by efficient office supervision.

The program set forth in Judge Rosa's paper, supplemented and developed in later discussions and writings,¹⁴ formed the basis for the changes which have taken place in equalization methods. In arriving at his conclusions Judge Rosa received much help and support from some of the supervisors but it proved almost as difficult to break down the general faith in the sales method as it had been earlier to build up this faith. However, with the assistance of progressive supervisors, changes in the personnel of the Commission, and the force of circumstances, the movement to revise the methods of equalization made rapid headway.

Although there had been some deviations from the sales method prior to 1925,¹⁵ the first real shift to the new program came in that year. The years since that time have been devoted to breaking down the accumulated sentiment remaining in favor of the sales method, to developing new methods, to consolidating those methods into a system, and to changing and reorganizing the personnel of the supervision staff.

*Elements in the Present Equalization System*¹⁶

In the new system as in the old sales method it is recognized that the goal of equalization is the determination of the market value of real estate, and that sales prices are the original source of information concerning market value. The differences between the systems lie in the methods of using sales prices to

most, if not all, districts in the state assessment. At least as early as 1921 inspections or appraisals were used with sales when the latter were scarce.

¹⁴ See *Report*, 1928, 1930, 1932; *Manual for Supervisors of Assessments, etc.*, 1931.

¹⁴ *Report*, 1928, 1930, 1932. Also discussions at the annual meetings of Assessors of Incomes. Also *Manual for Supervisors of Assessments, etc.*, 1931. The writer is informed that Judge Rosa is expecting to publish a book in the near future on property tax administration in Wisconsin.

¹⁵ For example, in 1923 a single-year sales value was used instead of a five-year average in the values of

reach the goal. There are six principal ways in which the old sales ratio method has been changed or supplemented—namely, the abolition of the five-year average, the classification of property, the increased use of inspections and appraisals, the development of the "mass assessment," the use of the real estate taxation district value card, and the change in the relations between the Tax Commission and the supervisors of assessments.

The Abolition of the Five-Year Average.

Because of the rapid upward movement of real estate values in the years immediately preceding 1920 and the decline, especially in rural values, immediately following 1920, the five-year average equalized values moved upward during the years 1921, 1922, and 1923 when it was obvious that actual values had moved downward. Furthermore, as a result of the movement in opposite directions of rural and urban real estate values following 1921, rural counties and taxation districts were obliged to pay county and state taxes which urban areas should have paid. Because of these unfortunate results the five-year average of sales values was abandoned and equalized values are computed from the most recent data available. To furnish stability to the equalized values thus computed the rule was adopted that each year's value is the starting point or base value for computing the next year's equalized value. For example, the 1931 equalized value of a taxation district became the base value for 1932. If the 1931 value was carefully worked out and if there was no evidence of a change in values during the following year, the 1931 value would be readopted for 1932. If the evidence indicated change, the 1931

value would be changed in accordance with the evidence. Any changes in the value for 1932 would thus be changes from the 1931 value, not simply the result of a mathematical averaging process.

The Classification of Real Estate. It was recognized that the lumping of all real estate in a taxation district as an undifferentiated mass resulted in applying assessment ratios on sold property to unsold property which might have a markedly different assessment ratio. To meet this difficulty the classification of real estate on the assessment roll was put into effect. Many causes exist for different assessment ratios, among them the size, value, and use of property, as well as accident. The factor which was recognized as being most important was that of use.

Prior to 1925 real estate was classified into land and improvements, and into "lands" and platted "lots," these being intended to distinguish rural and urban real estate. The division into land and improvements was retained, while the division into lands and lots was discarded and replaced by a division according to use into the following classes: in villages and cities—residential, mercantile, manufacturing, and agricultural (including miscellaneous); in townships¹⁷—agricultural, waste (marsh, cut-over, and waste), forest, and residential (including miscellaneous). This scheme of classification was first placed in the assessment roll in 1925 and, although resisted by some local assessors, soon became universal.

Real estate classification, together with a system of grading within classes, has been helpful in improving the quality of local assessment.¹⁸ In equal-

readers to whom a town is a small village or city.

¹⁸ See Krueger, L. B., "The Classification of Farm

(Footnote 18 continued on page 145)

¹⁷ The statutory designation for organized areas outside incorporated cities and villages is "town," but the word "township" is used instead to avoid confusion to

ization, each real estate sale is classified according to the use of the land, and sales ratios are computed separately on sales of each class. Ratios thus derived are applied only to the assessment of that class. Supervisors are encouraged to make additional classifications where the situation requires it for accurate results.

The classification by use is fundamental not only in the determination of equalized values by sales ratios but in all methods of determining such values. Whatever the method used, a value for each class is first determined and these values are added to arrive at the value of the taxation district.

The Increased Use of Inspections and Appraisals. Sales are no longer to be accepted and used merely because the apparent circumstances do not condemn them as unrepresentative. Sold property is to be inspected or more thoroughly appraised and included in the computation of the classified sales ratio only if the actual sales price represents the price at which, in the judgment of the supervisor, the property would resell. If the sales price does not represent the resale value or if the property is of a type not common in the taxation district, the sale is to be omitted in computing sales ratios.

This inspection or appraisal of sold property is also intended to educate the supervisor in the selling prices of property so that he may accurately appraise unsold pieces of property.

Inspections of unsold property entered rather generally into the calculations of the single-year sales values beginning about 1921 because of the lack of sales in many rural districts. The computation of assessment ratios by classes of property makes the use of inspections or appraisals more necessary as very

frequently there are no usable sales or an inadequate number of sales in one or more classes, especially manufacturing, mercantile, forest, and cut-over. Appraisals are not to be mixed with sales, classified assessment ratios and values being computed separately for sales and for appraisals. In a broad sense appraisals are based on sales because the appraisal is made by the supervisor who has a wide knowledge of the sales of real estate and of the similarities and differences of property not only within the taxation district but throughout the general area. It should be noticed that for the most part the appraisal is used in rural townships and small villages, and in the manufacturing and mercantile classes of property in cities. Sales have usually been adequate in valuing the residential property of cities.

The "Mass Assessment." The appraisal method uses the assessment ratio in basically the same manner as it is applied to sales and fills the gaps left by lack of sales. There are a great many taxation districts in which the local assessment is so unreliable that no ratio method can be made to work satisfactorily either with sales or appraisals. In such districts, and in others for the purpose of checking values, "mass assessments" and "mass estimates" are used. The "mass assessment" is in effect an assessment of all property in the district without regard to ownership. A supervisor of assessments spends two or three days in a township tramping over the land and examining the buildings. He then compiles his value for the township by classifying the land into so many acres of first grade at so much an acre, so many acres of second grade, and so on.

(Footnote 18 continued from page 144)
Lands for Assessment Purposes in Wisconsin," 8

Journal of Land & Public Utility Economics 113-125
(May, 1932).

Farm improvements are valued either by inspection or at an average value based on the inspection of a sample. The detailed figures are then totalled in order to arrive at a value for the township. In this process there is no recourse to assessment ratios and it is not even necessary to have an assessment roll, although a classified assessment is of assistance. The process is a highly subjective one but, assuming that the appraisers are competent and the township is fairly uniform, the mass values arrived at independently by different men are often remarkably close together.

The mass estimate is similar to the mass assessment, except that it is not so thorough. It is used as a check on values arrived at by other means but is not intended to be relied on in determining values.

The Real Estate Taxation District Value Card. The evidence collected by the different methods indicated above is entered each year on a card for each taxation district. The first figures to be entered on the card are the base values, i. e., the classified values arrived at in the previous year. Next are entered the various types of evidence of change or lack of change from these values. Classified sales values computed by the ratio method, classified appraisal values computed by the ratio method, and mass assessments are entered in different schedules. A schedule is provided for recording additions of land or buildings to the district during the year and of subtractions from it. The evidence is accumulated in a summary schedule and the supervisor records a judgment of the increase or decrease which he is to apply to the base value of each class of property in arriving at his recommendation of equalized value. A schedule is provided for entering ex-

planations of the situation in the district. The card is sent to the Tax Commission for its approval and, if approved, serves as the basis for the state assessment and for the recommendation which the supervisor of assessments makes to the county board.

Change in Relations between the Tax Commission and Supervisors of Assessments. The autonomy and independence which supervisors of assessments enjoyed prior to 1925 have been described in an earlier paragraph. The new system of equalization places a great deal more responsibility for independent judgment on the supervisor than he had before. The acceptance or rejection of sales is placed entirely in his hands. He does the inspecting of sales and the appraising of property, he makes the mass assessments, he prepares the recommendations of value both for the county boards and for the Tax Commission to use in the state assessment. His work is very much more subjective than it had been before and this subjectivity increases the danger of different value standards being applied in different counties. The Commission has recognized that, if the system is to work, much greater uniformity in methods and much greater supervision of individual supervisors will be necessary than under the former arrangement. Accordingly, the independence and autonomy of the supervisor have been largely destroyed and he has been brought under a supervision resting partially on frequent reports to the central office and partially on field work by the commissioner in charge of property work and his field men.

The supervisors of assessments who were placed in charge of income tax assessment in 1911 have in recent years become more and more specialized either as income tax or as property tax

men and only a few are now engaged in both types of work. In the past decade, the districts have been enlarged and reduced in number from nearly 40 to about 10. A supervisor usually has one or more deputies working under his direction.

To standardize the new methods and to train the supervisors in them, as well as to make direction and control more simple, a manual of instructions was prepared in 1931¹⁹ which explains in detail the method of applying the present system of equalization and also the system of assessment supervision.

The Functioning of the New System

In its discrete parts there is little that is novel in the present system of equalization. The desirability of classification of property,²⁰ the use of ratios from appraisals,²¹ the valuation of districts by acreage figures (now developed into the "mass assessment,"²² the possible dangers of the five-year average,²³ all were recognized and discussed at the time the sales method was becoming universally accepted by the supervisors of assessments. The originality of the present system lies in the manner in which it organizes these methods into a working plan for the entire State with a body of rules designed to eliminate dangers inherent in the methods employed.

Perhaps the chief merit of the present system lies in its flexibility and adaptability to a variety of conditions. Being a combination of almost every method of arriving at the value of real estate, its various elements can be expanded or contracted to meet almost

any situation which may arise. Its accuracy can be indefinitely increased by the increased expenditure of money. The old sales method had definite limitations. It was suitable only when favorable conditions existed and its accuracy could not be increased beyond narrow limits by the additional expenditure of time and money without departing from the method itself.

The increased flexibility of the system is made possible largely by increased use of the judgment of supervisors. Judgment was involved in the sales method, particularly in the application of rules for the inclusion or exclusion of sales in computing sales ratios. However, that judgment was exercised in many small items, was guided by detailed rules, and did not require an especially high order of ability to be satisfactory. The present methods make very great demands on judgment in addition to those called for by the sales method. Would a piece of property ordinarily sell for the price at which it did sell? How much is a particular farm or home or factory worth? Does the evidence showing a change in values indicate a real trend or is it an accident? What course should be followed if two types of evidence are conflicting? Daily answering of these questions is a necessary part of the supervisors' work under the present system.

It will be recalled that the sales method was introduced in part to lessen the emphasis on personal judgment. The present system returns to large-scale reliance on it. To insure judgment of a high and uniform quality

¹⁹ *Manual for Supervisors of Assessments, Field Statistician, and Property Tax Employees of Central Office*, Wisconsin Tax Commission, Madison, 1931.

²⁰ *Proceedings of the Tenth Annual Meeting of Supervisors of Assessments*, 1911, pp. 115-116; letter of A. E. James to H. L. Lutz quoted in Lutz, *State Tax Commission*, pp. 284-286.

²¹ *Report*, 1914, p. 40.

²² *Proceedings of the Eighth Annual Meeting of Supervisors of Assessments*, 1909, pp. 104-106; *Ibid.*, *Sixth Annual Meeting*, 1907, p. 55; *Ibid.*, *Tenth Annual Meeting*, 1911, pp. 109-110.

²³ *Report*, 1916, p. 3; *Ibid.*, 1920, pp. 5-6.

is perhaps the major problem of the present system. Safeguards have been set up in the form of working rules, comparisons between supervisors, and field supervision by the Commission or its field investigators. Districts have been made larger partially because one man's judgment may then cover a larger area. The real success of the present system must constantly depend on the quality of the judgment of the supervisors which in turn rests on the personnel and on the Commission's supervision.

Flexibility and adaptability thus have their dangerous sides. If the present methods are expansible they are also contractible. A decrease in appropriations, a failure of leadership, a deterioration in the quality of personnel, or the entrance of political manipulators would not affect the surface appearance of the system but would permit a degeneration which might result in a complete breakdown. Under such circumstances the limitations of the sales method would become elements of strength. In short, the present system is a higher and more complicated species of governmental administration and more capable of developing or degenerating than are the simpler forms.

Although these dangers are very real, under existing economic conditions and quality of administration the present methods have produced an important improvement in the accuracy of equalization. If the pure sales method were in operation at the present time, equalization would be in collapse over a large part of the State for lack of reliable data. It is difficult if not impossible to do a really satisfactory job of assessment or equalization with any methods at the present time when there is no real market for property, but the application of a method relying entirely

and directly on sales would be less possible and certainly less accurate than one making the most of every sale through indirect methods.

It is also probable that the new methods would have produced more accurate results than the sales method under conditions existing before the War. It is almost certain that they would have done so among taxation districts within the counties because the new methods are strong at this point where the sales method was relatively weak. It is questionable whether the new methods would have been any more satisfactory in equalizing between sections of the State because the difficulties of keeping different men with different temperaments in different situations on the same standard tend to offset the inaccuracies of the sales method which was at its best in comparing large areas.

Another merit of the present system of equalization is the manner in which it unifies the processes of equalization and of supervision of assessments. The sales method of equalization bore little relation to the problem of supervision. It did not require the supervisor to go into the field and make that study of property without which he could not fully assist and supervise the assessor. The new methods make supervision and equalization integrated tasks. On the one hand, the supervisor secures much of the information needed for his equalization while directing and assisting the assessor and, on the other, his equalization work makes him thoroughly familiar with the property of the district so that he can really help the assessor.

It is reasonable to believe that under equally efficient administration the present equalization system costs somewhat more than would the sales method

because it requires more work. Just how much greater the cost is cannot be ascertained because of difficulties in allocating costs. The additional cost of equalization is offset in part by the combination which can be effected with supervision of assessment. In comparison with the \$100,000,000 general property tax bill of the State the cost of both equalization and supervision, approximately \$100,000 in a recent year, is not high.

Most of the people, of course, know nothing about the way in which assessments and taxes are equalized. Members of county boards who must engage in making the county equalization have for the most part been pleased by the development of the present system. It produces results which fit the facts closely and can be reasonably explained. Some preference has remained for the sales method up to recent years but it is unimportant in amount. The railroads and public utilities have made little if any objection to the new methods.

It is not likely that the return of a new period of stability and activity in the real estate market will result in a return of the old sales ratio method as

such. The present system has within its own mechanism provisions for the automatic return to the use of sales as fast as they become available and suitable for use. In the light of the new developments the unclassified, unsupplemented sales method appears too naive and inadequate to handle the difficult problems which equalization presents.

In last analysis the Wisconsin system of equalization must be judged in the light of the functions which it performs. With local assessments made by approximately 1,800 assessors who are for the most part elected, these functions are relatively more important and their performance more difficult than they would be if the assessment units were larger and the assessors more carefully chosen. The system of equalization methods now in use has performed these functions on the whole satisfactorily. Indeed, because of its very success it may be held largely responsible, together with the system of Tax Commission supervision of local assessments, for the preservation of an antiquated system of local assessment in a State noted for its progressive tax policies.

The Future of the Electric Utility Industry: Fated or Planned?

By L. G. CANNON

TREMENDOUS things have happened, and are continuing to happen, to the electric light and power utilities. Various factors of the depression and certain phases of the New Deal economics have combined to produce a situation in the electric utility industry which appears bewildering to most persons, ominous to some, and propitious to others. By the consuming and investing public the impression of what is taking place is measured by individual reactions to reduced electric bills, to losses in dividends and interest, and to depreciation in utility securities. By utility managements the understanding of the events affecting their positions and interests is expressed in both certain and uncertain terms, with a prayerful undertone to both sets of utterances that the storm will leave intact the foundations of private capital upon which the industry may be reconstructed. By some critics and critical observers of the utility situation the verdict is reached that the utilities have come to the crossroads and are about to make a left turn, the general direction being more evident than the route to be followed.

Diverse opinions as to what the industry will come to as the result of the happenings of the last three years down to date do not spring entirely from different points of view. It is not to be expected in the utility field, where conflicting interests and opposing schools of thought have long been in evidence, that anything like unanimity of opinion as to which direction the industry should take could be obtained. It is in

the matter of judging how far the utilities *have* come—or gone—that the appraisals differ, not only because of the color lent by opposing beliefs, but because of the confusion produced by the pressure of many factors converging from many directions.

Therefore, an examination of the factors themselves, together with an analysis of the effects they have wrought and an estimate of the consequences they are tending to produce, might well become the starting point for an appraisal of the present situation in the electric utility industry.

A completely satisfactory appraisal may not be possible because of the meagerness of statistical data regarding the industry, and some information upon which to base an analysis may be held suspect because of its source. In the absence of better information, however, it is necessary to use the data compiled by the industry itself, accepting them at their face value. But these disadvantages should do little more than limit the accuracy of the project and should not prevent a general review of the current situation of the industry. If such an appraisal fails in the end to disclose conclusive evidence of the direction the industry is taking, it should at least develop implications as to some of the aspects of the future problems.

The factors which have threatened the erstwhile prosperity of the utilities fall into two major classifications: (1) those tending to reduce gross revenues; and (2) those tending to increase the operating costs of the utilities.

Factors Tending to Depress Gross Revenues

1. The force which has been at work the longest in reducing gross income of the utilities, and to which all other factors stand as corollaries, is the depression. Gross operating revenues of the industry as a whole did not fall until 1932, two years after the depression had started, but a better than 0.7% reduction in revenues from sales to ultimate consumers in 1931 belied the strength of gross earnings in consolidated income statements for that year and indicated that the industry had its vulnerable points, some of which were definitely rotten spots.¹ The following comparative figures on gross operating revenues and sales' revenues are illustrative of the situation for the three years, 1930-1932:²

	1930	1931	1932
Gross operating revenues	\$2,135,000	\$2,140,000	\$1,936,301
(In thousands)			
Sales' revenues	1,990,995	1,975,945	1,832,596
(In thousands)			
Percentage of sales' revenues to gross operating revenues	93.25%	92.3%	94.64%

From the foregoing figures it will be seen that from 1930, which marked the industry's peak in gross earnings, the sales' revenues had declined almost 8% by the end of 1932. This reduction can be ascribed almost entirely to the deadening effect of the depression, for, preceding the revenue loss, kilowatt-hour sales had declined approximately 15% and the number of customers almost 2%. That no greater income loss was suffered in this period was attributable: (1) to the load-factor method of

charging for service,³ and (2) to an actual increase in sales to domestic consumers.⁴ The inexorable onset on the utility business by the general depression can be traced through 1933. According to preliminary figures compiled by the Edison Electric Institute⁵ the year 1933 saw the backlog of the industry—the domestic consumers—definitely weakened. Not only did the number of customers in this group drop from 20,149,352 in 1930 to 19,800,172 in 1933, but the total sales to the group declined for the first time in the history of the industry and the average usage per residential consumer in 1933 barely exceeded the average of the preceding year. That the depression was the prime factor in causing the decline in domestic usage is further evidenced by the report of the Commonwealth Edison Company for 1933, showing that in Chicago, with no rate changes or competitive developments to complicate the results, not only did domestic sales and number of customers drop, but the average consumption per consumer decreased 1.2% from 1932.

2. In the chronological order of events the next factor to prey upon the utilities' business was isolated plant competition for the industrial power group of customers. This movement was a direct outgrowth of the depression. It became particularly rampant in 1932 and was continued as a threat by many industrial concerns throughout 1933 in their efforts to reduce the one department of expense not protected by the N.R.A. Just how much wholesale power and light business was lost to isolated plants in the last two or three years is difficult to

¹ For example, gross operating revenues of some companies contained such items as profits through sale of securities to subsidiaries, as reported by such members of the industry as Middle West Utilities.

² Edison Electric Institute, *Statistical Bulletin No. 9*, August, 1933.

³ As a consequence of load-factor rates the average revenue per kw. hr. (all sales) increased from 2.66c in 1930 to 2.87c in 1932.

⁴ The average domestic consumer used 548 kw. hrs. in 1930 and 601 kw. hrs. in 1932.

⁵ See Table V.

gauge, but the threats of loss were sufficient to force many reductions in industrial power rates.

3. With all revenues of the industry crumbling under the force of the depression and with income from industrial power rates undermined by threatened isolated plant competition, the utilities' financial position was assailed from a third direction after the elections of 1932 when state utility commissions were rejuvenated by new legislation and by new and more expeditious methods of regulation. At least four states—Wisconsin, New York, Indiana, and Illinois—were armed with statutory power to obtain rate reductions by emergency orders and other state commissions began asking for such powers. The questions raised in the appeal of the Wisconsin Telephone Company from an interlocutory order of the Wisconsin Public Service Commission have since produced some doubts as to the legality of the procedure, and the efficacy of the method appears likely to be destroyed by prolonged ensuing litigation.

Partly as a result of the threatened breakdown of this statutory device the conference method of procedure was brought into play against utility rates. This method was applied either in formal rate cases, resulting in agreements between utilities and commissions as to rate-bases, rates of return, and rates, or in informal negotiations leading to rate adjustments only. Regulation by negotiation met with considerable success, as viewed by the commissions. According to the late Mr. George W. Woodruff, member of the Pennsylvania Public Service Commission, the experience of the Pennsyl-

vania Commission in informal negotiations brought out the following interesting points:⁶

"1. Not once has a company tried to argue against being called into such conferences.

"2. At no such meeting has the president of the company been absent. Sometimes the president of the holding company attended also.

"3. Contrary to experience with such prejudiced witnesses at formal hearings, I have never heard a representative of a company at an informal conference tell anything which did not appear truthful or which was found untruthful.

"4. Never, thus far, in spite of unprecedented bad business conditions, has any company refused to make some reductions. The dollar and cents reductions voluntarily made by all utilities as a result of informal conferences in Pennsylvania, for a trial period of 15 months, have been somewhere around \$4,000,000 per year . . . "

Still another means of effecting rate reductions was employed by some commissions; by threatening to issue certificates of convenience and necessity to competing utilities, particularly municipally owned enterprises, some commissions⁷ brought the existing companies to terms in the matter of rates. For example, in Wisconsin the town of Hustisford recently secured a permit from the Public Service Commission to engage in the electric utility business in competition with the Hustisford Light and Power Company and the Commission ordered the Wisconsin Power and Light Company to sell power at wholesale rates to the municipality's distribution system.

4. A factor, thus far more apparent than real, but none the less effective in depressing earnings of the industry, was federal regulation. Despite the cam-

⁶Excerpts from a discussion presented at the 1933 annual convention of the National Association of Railroad and Utilities Commissioners, Cincinnati, O. (*Electrical World*, December 30, 1933).

⁷Only seven state commissions had authority to issue certificates of convenience and necessity to municipally owned utilities, as of January 1, 1931.

paign remarks of President Roosevelt, federal regulation of the utilities still remains a bogey in the closet, but it has been dragged out often enough to cause many holding companies to review their management contracts with subsidiaries, and many operating companies to revise their interchange energy purchase agreements, thus releasing margins of income to absorb rate reductions. The Johnson bill, now pending in Congress, which would withdraw the power of federal district courts to enjoin rate action by an administrative body or commission, is thought by its framers to expedite rate matters, and, presumably, rate reductions. However, it should be noted that the Johnson bill, in seeking a systematic advantage in procedure by making the state courts the first line of appeal from commission rulings, apparently presumes the equal character and ability of elected state judges and an appointed federal judiciary.

5. The municipal ownership movement, enfeebled during the last 10 years by obsolete production methods and by the inroads of private capital (aided and abetted by municipal desires for new schools and other public improvements) showed signs of resuscitation as a competitive factor threatening the position of private enterprise in the electric service field.

Evidence of a reviving interest in municipal ownership of electric utilities as early as 1931 was seen in studies reported by Dr. Paul Jerome Raver.⁸ Dr. Raver found that, although municipi-

pal establishments continued to decline in number during 1931 and 1932, they declined at a decreasing rate. Factors responsible for this trend varied widely in different localities, but the trend was assignable, in general, (1) to the insistence of municipalities for lower rates; (2) to the possibility of merging part or all of municipal government expenses with municipal electric plant costs and receiving them from utility ratepayers, and (3) to the inability of private capital utilities to maintain the pace of the 1920's in acquiring municipal establishments. After the middle of 1933, the municipal, state, and federal ownership movements developed a feverish enthusiasm under the spur of Federal Government loans, so much so that the Edison Electric Institute was stirred to protest against the government's assistance and other organizations⁹ were formed to add voice against the program of subsidizing competition with private capital utilities.

Piecemeal information and conflicting reports and estimates make it difficult to measure the extent to which the municipal ownership movement has been accelerated by the lure of federal loans and grants. From newspaper accounts and reports in the *Electrical World* from July 1, 1933 through February, 1934¹⁰ a rough check has shown that three new municipal power plants were completed in 1933; 59 new municipal electric establishments were approved for construction in 1934, and 73 new projects were proposed for 1934 or later. During the period surveyed,

operators and union miners.

⁸ "Municipal Ownership in the Last Five Years", *Journal of Land & Public Utility Economics* 121-134 (May, 1933); "Is Municipal Ownership at the Crossroads?", *ibid.* 61-66 (February, 1934).

⁹ Notably The American Federation of Utility Investors, Inc. and the National Job Saving and Investment Protective Bureau—the former an organization headed by Chester D. Tripp, a mining and metallurgical engineer; the latter a national organization of coal mine

¹⁰ It was considered that this period would be the most interesting to sample, inasmuch as loans to municipalities for new construction of and additions to municipal plants under the first P.W.A. fund were largely consummated during this time. The data developed are by no means conclusive, at best only indicating developments in the municipal ownership field.

proposals for city-owned facilities were turned down in 22 communities, either by popular ballot, council order, or court action. Of the 59 municipal projects approved, 12 were reported to have received federal loans or grants to a total of \$3,526,000.¹¹ Eleven of the 72 new power projects proposed for municipal ownership were noted to have applied for P.W.A. aid in the total sum of \$2,712,483.¹²

Even greater difficulty is experienced in obtaining reliable data regarding the development of public power projects. Available information is confusing, first, because distinction often is not made between planned and potential power developments, and, second, because related phases of development, such as flood control, irrigation, etc., are frequently included in estimates of construction costs. Work reported to be in progress or in immediate prospect at the principal public hydro-electric plants¹³ and the sums of money advanced by the Federal Government toward the projects are summarized as follows:

	Kw. Capacity	Federal Loans and Grants
Tennessee Valley Authority...	165,000	\$ 50,000,000
Boulder Dam, Colorado River	1,400,000	165,000,000
Grand Coulee, Columbia R.	550,000	63,000,000
Bonneville Dam, Columbia River.....	435,000	22,500,000
North Platte, Nebraska.....	38,400	7,500,000
TOTAL*.....	2,588,400	\$308,000,000

*In addition, approved public water power projects, for which capacities are not known by the writer, include Verde, Ariz., (\$4,000,000); Pecos River, Red Bluff, New Mexico (\$2,600,000); Loup River, Columbus, Nebr. (\$7,300,000). Applications for federal loans have been made in behalf of public hydro-developments on the Ouachita and Red Rivers at Denison, Tex. (\$35,000,000) and at Gillette, Wyo. (\$8,217,500).

The future of public power developments has been variously estimated. Recently a committee consisting of the Secretaries of War, Commerce, Agriculture, and the Interior was appointed by President Roosevelt and given a

\$400,000 appropriation to conduct preliminary studies of a proposed permanent national program for developing water resources and to investigate the costs of production and distribution of hydro-electric power. An estimate of ultimate developments at the four principal hydro projects in the United States, derived from various sources, is given in the table below.¹⁴

The effect of municipal and public power competition on the revenues of the private utilities is impossible to measure. Some of the effect will be postponed until the municipal and public projects have been placed in operation. But indirect results of the program have already been felt in the utilities' gross receipts as rate reductions have been instituted in many localities

¹¹ Federal loans and grants to other municipalities for improvements or extension of existing plants totaled \$3,143,400.

¹² Only two cases of applications for federal assistance for proposed plant extensions were found. These were Centralia, Mo., requesting a \$60,000 loan, and Monett, Mo., asking for \$148,505.

¹³ *Electrical World*, January 6, 1934.

¹⁴ Prospectus of Principal Public Hydro Projects in the United States:

	Ten- nes- see River*	Col- orado River†	Col- umbia River‡	St. Law- rence River§	Total
Purpose					
Flood control...	Yes	Yes	Yes	No	
Irrigation.....	No	Yes	Yes	No	
Navigation....	Yes	No	Yes	Yes	
Power produc- tion.....	Yes	Yes	Yes	Yes	
Number of Dams	200	1	9	2	
Installed Capacity (Completed) kws (In thousands)	3,000	800	4,500	820¶	9,120
Total Cost of Pro- ject..... (In millions)	\$1,200	\$165	\$1,000	\$272	\$2,637

* Kimble, Ellis, "The Tennessee Valley Project", *Journal of Land & Public Utility Economics* 325-339 (November, 1933).

† *Ibid.*

‡ Stanley, Dook, "Grand Coulee—A Giant Power Threat", *Barron's National Weekly*, December 25, 1933.

§ Breedlove, L. B., "T. V. A. Appraised", *Chicago Journal of Commerce and LaSalle Street Journal*, December 21, 1933.

¶ This would be the one-half of the total power supply to come to the United States.

either to meet the competition or to forestall it.¹⁵

Analysis of the Effect on Gross Revenues

What has been the compound effect of the aforementioned factors on the private utilities' gross revenues? Since it has been demonstrated that gross operating revenues may be misleading as an index of real income, the best measurement of the cumulative effect of the forces of the depression, regulation, and competition on the industrial business is afforded by a comparison of revenues from sales to ultimate consumers. The comparative figures on sales' revenues for the period 1930-1933 are as follows:¹⁶

Year	Sales' Revenues
1930.....	\$1,990,955,100
1931.....	1,975,944,500
1932.....	1,832,595,900
1933.....	1,773,415,600

In the light of the heavy losses in income suffered by all industries throughout the depression, there would appear to be nothing sensational in the fact that electric utility sales' revenues declined approximately 11% from 1930 to 1933. The significance of this decrease is more far reaching than is apparent from the bare figures. Three facts peculiar to the electric utilities show the need for further analysis of this decline in revenues: (1) the electric utility industry has a relatively large amount of fixed capital in relation to revenues; (2) the decline in the utilities' revenues continued throughout 1933 (the decrease in that year amounting to 27% of the three-year loss) when other enterprises were beginning to experience

increased revenues; and (3), as a regulated industry, the utilities are obliged to charge for service on the basis of approved rates, which are relatively easy to adjust downward but, under present circumstances, exceedingly difficult to increase.

Proof of the complicating effects of such a comparatively small reduction in gross revenues because of the high-fixed-capital-cost aspect of the utility business lies in the behavior of the capital turnover ratio of the industry during the period of declining sales' income. On the basis of revenues from sales only (as has been shown, these represent the bulk of total income and normally reflect the trend of gross operating revenues), the capital turnover ratios rose precipitately after 1930, as follows:¹⁷

Year	Capital Turnover Ratio
1930.....	5.95
1931.....	6.28
1932.....	6.88
1933.....	7.22

This inherent characteristic of the business—namely, a large proportion of total expenses represented by fixed costs—might well explain a lagging of the utilities behind most other industrial types in the 1933 revival. However, other things being equal, this lag ordinarily would have been reflected in the net earnings of electric corporations, rather than in gross revenues. In point of total sales' volume, the utilities' business in 1933 acted as a barometer of better times for all industries, increasing 3% from the 1932 volume, but in all other respects the utilities occupied an anomalous position. Instead of receiving the impetus of rising prices

¹⁵ Geneseo, Illinois precipitated a rate war by operating a municipal plant in July, 1933 in competition with a private utility. Rockford, Illinois obtained rate reductions in 1934 after threatening to install a municipal plant.

¹⁶ Edison Electrical Institute, *Statistical Bulletin* No. 9, August, 1933 and Supplements.

¹⁷ Capitalization of the industry for each of the years noted: 1930, \$11,850,000,000; 1931, \$12,400,000,000; 1932, \$12,600,000,000 (Edison Electrical Institute, *Statistical Bulletin* No. 9, August, 1933). Capitalization for 1933, estimated by *Electrical World* (January 6, 1934) at \$12,800,000,000.

geared to a program of a return to 1926 levels, as did other industries, the utilities were forced by the combination of factors already noted to reduce rates. Furthermore, after operating for years under the doctrine of *Munn v. Illinois* as regulated monopolies free from the subversive elements of uncontrolled competition, the utilities found themselves at the end of 1933 under the N.R.A., an institution designed to eliminate cut-throat competition in general industry, but, unlike other enterprises, the utilities were beset by the competitive forces symbolized by P.W.A. and T.V.A.

Considering that the two factors bearing down most heavily on the utilities' revenues—namely, commission regulation and public competition—did not bulk large until well into 1933, it is altogether likely that their full effect was not reflected in income statements of the past year. As this effect was largely translated into rate reductions, many of which were delayed in becoming operative, it may be expected that 1934 will end with no improvement in gross receipts of the private utilities; indeed, a continued decline is more in prospect. The practical consideration that rate reductions once made are difficult to set aside or to be offset by increases at some later date¹⁸ lends some certainty to this prediction. However, it should be remarked that past experience has shown a marked tendency for rate reductions to result in increased sales per customer, particularly in the domestic service and small light and power groups, and consumer demand may be expected to become more elastic with reviving general economic conditions and thus provide something of a counter-balancing effect to rate losses.

¹⁸ The recently enacted Illinois statute empowering the state commission to institute emergency rate re-

In view of the important part that rate reductions are likely to have in molding the future of the utilities' financial position, analysis of rate changes thus far instituted is called for. Some appreciation of the trend of rates may first be gained from the following comparison of kilowatt-hour sales and average revenue rates per kw. hr.

	Total Kw. Hr. Sales (in thousands)	Average Revenue per Kw. Hr.
1930.....	74,906,096	2.66c
1931.....	71,901,882	2.75c
1932.....	63,764,024	2.87c
1933.....	65,753,608	2.69c

From this analysis it will be seen that in the two depression years following 1930, average revenues per kilowatt-hour of sales increased as the sales themselves declined, but this trend was reversed in 1933, with the following comparative results:

	Percentage Change 1930-1932	Percentage Change 1930-1933
Total kw. hr. sales.....	-14.9%	-12.2%
Average revenue per kw. hr.	+7.9%	+1.1%

How the rate reductions affected the principal customer classifications—domestic service, small light and power, and large light and power—may be observed from the "average consumer" statistics contained in Table I, which shows the trend in these consumer groups.

An equally interesting development in rate trends is indicated in the analysis of class-rate differentials given in Table II. A narrowing margin between the rates received for domestic service and those for small and large light and power was evident through 1932, principally as the result of declining sales

reductions provides that utilities may be granted compensating increases if later complete findings point to confiscation in the original order.

TABLE I. "AVERAGE CONSUMER" STATISTICAL DATA

	Domestic Service	Small Light and Power	Large Light and Power
1930			
Av. Kw. Hr. Sales.	548	3,860	77,000
Av. Revenue.....	\$33.00	\$160.00	\$1,092.00
Av. Revenue per Kw. Hr.....	6.03c	4.13c	1.42c
1931			
Av. Kw. Hr. Sales.	584	3,640	69,700
Av. Revenue.....	\$33.78	\$152.00	\$1,034.00
Av. Revenue per Kw. Hr.....	5.78c	4.17c	1.48c
1932			
Av. Kw. Hr. Sales.	601	3,488	56,226
Av. Revenue.....	\$33.54	\$143.00	\$ 859.00
Av. Revenue per Kw. Hr.....	5.58c	4.09c	1.53c
1933			
Av. Kw. Hr. Sales.	604	3,398	63,779
Av. Revenue.....	\$33.12	\$136.11	\$ 880.09
Av. Revenue per Kw. Hr.....	5.49c	4.01c	1.39c
Percentage Change 1930-1933			
Av. Kw. Hr. Sales.	+10.2%	-12.0%	-17.2%
Av. Revenue.....	+ 0.4%	-14.9%	-19.4%
Av. Revenue per Kw. Hr.....	- 8.9%	- 2.9%	- 2.1%

in the latter classifications as opposed to an increase in residential use. On the basis of the figures given, it would appear that the margin widened in 1933. But here it should be stated that the use of average revenue figures is unreliable in measuring the rate or price trend, for the reason that the revenue factors are inextricably identified with the variable of usage of service as a consequence of the utilities' policy of charging for service on a load-factor basis.

The dollar-and-cents result of rate reductions in all consumer classifications for the four-year period (1930-1933) has been estimated by the Federal Trade Commission at \$118,747,654. Based on a survey of statistics of the industry, the Commission has estimated that 13 reductions in 1930

amounted cumulatively to \$28,362,840 by the end of 1933; 32 reductions in 1931 resulted in consumer savings of \$38,205,414 for two years; and 68 reductions in 1933 yielded a saving of \$31,303,000. If the total amount of these savings was actually enjoyed by utility consumers, it would appear that rate reductions *per se* accounted for more than 51% of the drop in the utilities' sales revenues from 1930 to the close of 1933.

TABLE II. CLASS DIFFERENTIALS (ON THE BASIS OF AVERAGE REVENUE PER KW. HR. OF SALES)

Times Domestic Service Average Revenue to:	1930	1931	1932	1933
Small Light and Power Average Revenue.....	1.46	1.38	1.36	1.37
Large Light and Power Average Revenue.....	4.25	3.90	3.64	3.95

In order to measure more accurately the trend of electric utility rates, a survey, in which the variable factor of usage of service is eliminated, has been undertaken by the Public Utilities Seminar of the School of Commerce at Northwestern University. In this survey hypothetical use factors for each consumer group are applied to rate schedules of companies serving all communities of 20,000 population or over in the United States.¹⁹ Results of the survey, a sample of which is given in Table III for the State of Alabama, will shortly be available.

Analysis of Factors Tending to Increase Operating Expenses

The major influences tending toward increased operating costs have been: (1) the N.R.A., (2) taxes; and (3) adjustments of other fixed expenses.

With the utility companies as yet operating under a temporary code, no

¹⁹ By using the N. E. L. A. and E. E. I. *Rate Books* of 1930 and 1933 (including the Supplement of September 15, 1933).

TABLE III. ELECTRIC UTILITY RATE SURVEY, 1930 AND 1933
ALABAMA*

Weighted† Average Rates		
Classification	1930	1933
Residential		
25 Kw. Hrs.	7.51 ^c	6.48 ^c
50 Kw. Hrs.	7.25	5.98
100 Kw. Hrs.	6.82	5.45
Commercial		
548 Kw. Hrs.	7.06	5.71
1,440 Kw. Hrs.	5.02	4.87
4,500 Kw. Hrs.	3.82	3.65
Industrial		
7,200 Kw. Hrs.	2.16	2.16
48,600 Kw. Hrs.	1.46	1.46
432,000 Kw. Hrs.	1.17	1.16
Percentage Change in Weighted Average Rates		
Classification	Percentage Change, 1930-33	
Residential		
25 Kw. Hrs.	-13.72 ^c	
50 Kw. Hrs.	-17.52	
100 Kw. Hrs.	-20.09	
Commercial		
548 Kw. Hrs.	-19.12	
1,440 Kw. Hrs.	-2.99	
4,500 Kw. Hrs.	-4.42	
Industrial		
7,200 Kw. Hrs.	0	
48,600 Kw. Hrs.	0	
432,000 Kw. Hrs.	-.86	
Weighted Average Rate Differentials		
Classification	Times Residential to Commercial and Industrial Rates	
	1930	1933
25 Kw. Hrs.		
To 540 Kw. Hrs.	1.24	1.14
To 7,200 Kw. Hrs.	3.44	2.89
50 Kw. Hrs.		
To 1,440 Kw. Hrs.	1.44	1.23
To 48,600 Kw. Hrs.	4.92	4.04
100 Kw. Hrs.		
To 4,500 Kw. Hrs.	1.77	1.49
To 432,000 Kw. Hrs.	5.78	4.69

* Alabama: 7 cities with 1930 populations of 467,313 and 1933 populations of 481,726.

† Weighted according to population of cities in each state included in the survey.

satisfactory information regarding the effect on operating expenses of wage increases and shorter hours under the N.R.A. is available for publication in this article.²⁰ The Commonwealth Edison Company (Chicago) estimated in its *Annual Report* for 1933 that compliance with the temporary code would increase the operating pay roll by approximately \$965,000 per year. This Company reported operating expenses, exclusive of taxes and depreciation, of \$39,557,728.77 for 1933, which, considering that the N.R.A. code became effective in August, would have been approximately \$39,200,678.77 had it not been for the effect of the wage and working hours' agreement. On the basis of a full year's effect of the code, the increase in operating expenses attributable to the N.R.A. would have been slightly more than 2%. Stated in another way, by giving full effect to the N.R.A. pay roll increases, the Company's operating ratio for 1933 would have been 55.3% as compared with the 53.6% of gross revenues taken by operating costs in 1932.²¹ A concomitant effect of the N.R.A. pay roll increases on all utility companies has been to transfer a portion of wages from a variable expense item to a more fixed overhead cost. A further increase in pay roll expense would be effected if the Wagner bill, which provides for a levy on employers for unemployment insurance purposes, is enacted into law by Congress. Of possibly even greater importance, the N.R.A. in its effect on prices of commodities and capital goods tended to increase other items of the utilities' operating and maintenance

²⁰ This article was being written in March, 1934.²¹ On the basis of total gross earnings of each year in the consolidated income account of the Commonwealth Edison Company and Commonwealth Subsidiary Corporation. Operating expenses exclude taxes and depreciation.

costs, which are difficult to gauge but which bulk large in total costs. For example, electrolytic copper increased 60% in price by the end of 1933 over the prevailing prices of 1932 and one-to-three-inch pipe increased 18% in price in the same period.

Taxes increased from 1930 to 1932 by 6.6% and, it is estimated, jumped another 16.3% in 1933 above the 1930 bills as the result of mounting local and state taxes and the transfer from consumers to the electric utility companies of the federal 3% tax on domestic and small light and power sales. The effect of increasing taxes has been to create an immutable fixed charge, which annually has taken more and more revenue dollars to pay and has recently become more difficult to meet as revenues have shrunk, as illustrated by the data in Table IV.

From the standpoint of the companies' ability to stay within their income and meet their other fixed obligations, taxes have become a millstone around their necks in their efforts to adjust operating expenses. This is demonstrated by the analysis below:

	1930	1931	1932	1933†
Operating ratio* on basis of operating expenses†, excluding both depreciation and taxes.....	47.5%	46.2%	45.5%	45.7%
Operating ratio* on basis of operating expenses†, excluding depreciation but including taxes.....	57.7%	56.9%	57.3%	59.8%

* Ratio of expenses to consumer sales' revenues.

† Compiled by *Electrical World*, January 6, 1934.

‡ Estimated by *Electrical World*, January 6, 1934.

Other items of utilities' fixed expenses were increased after the middle of 1932 in an amount not easily calculable for the entire industry, as some corporations began doing penance for the sins of commission and omission of their managements during the financing stages of the business. Refunding of

TABLE IV. COMPARISON OF ELECTRIC UTILITIES' REVENUES AND TAXES

Year	Consumer Revenues	Total Taxes Paid by Companies*	Taxes in Cents Per Dollar of Consumer Revenues
1902.....	\$ 82,422,000	\$ 2,654,885	3.4c
1922.....	940,161,000	73,128,440	8.4
1926.....	1,520,159,000	140,400,000	9.3
1930.....	1,990,955,100	203,500,000	10.2
1931.....	1,975,944,500	210,000,000	10.6
1932.....	1,832,595,900	217,000,000	11.8
1933.....	1,773,415,600	250,000,000†	14.1

* Compiled by Edison Electric Institute.

† Estimated by *Electrical World*, January 6, 1934.

debts was accomplished only by paying increased interest charges and by accepting higher discounts and sinking fund requirements under conditions of short-term bond issues. Contingency reserves for writing down property and investment accounts also made their appearance in current income-and-expense statements as surpluses were found to be inadequate to take care of such adjustments. In addition to these increases in expenses below the line of net operating income, there were increases in the above-the-line fixed charge for depreciation in cases where this item of operating expense had been deferred or inadequately provided for.

These increases in fixed expenses were not chargeable to the "cost of the service", but had to be borne by the equity stockholders. Where the equity ownership was held by holding companies, the dividend losses, for which these increased fixed expenses were responsible in part, were transmitted throughout the super-capital structure and to some extent reflected against the credit situation of the entire electric utility industry.

The Status of the Industry Summarized

As revealed by the foregoing analysis of operating ratios,²² two sets of factors

²² Summary of the statistical data of the electric
(Footnote 22 continued on page 160)

converging at the point of net operating income have been militating against the return on the capital invested in the electric utilities. There can be no disputing that the utilities have been ground between the millstones of declining revenues and increasing expenses. Whether all will be grist that comes from the milling process, or whether the private capital industry will be ground to dust becomes a question, which, however, in so far as this article is concerned, must await the future for a complete answer. However, certain implications of the future problems involved in the proposition as to whether the electric utility industry shall remain in private hands or become publicly owned and operated may be explored without controversial complications.

A. If the Industry is to Be Retained by Private Capital

In order that the phantasmagoric effect produced by the present shifting economic and political scenes may be eliminated from the picture of the future problem of the industry in private hands, it will be assumed, with some deviations, that the electric utilities, like other industries under the N.R.A., are to be given the opportunity to operate on the basis of the 1926 indices of production, employment, costs, and prices. Such a supposition is not a mere whim intended to develop captious or ironical conclusions, but is conceived as providing a working basis for presenting some of the ramifications of the private utilities' internal problems.

The assumption involves using the 1933 capitalization of the industry

(Footnote 22 continued from page 159)

light and power industry on which this and other analyses are based is contained in Table V.

²² In this example capital turnover ratio is based on gross sales' revenues from ultimate consumers in order

(\$12,800,000,000) as a basis for applying the 1926 factors of capital turnover and operating ratios.²³ This results in what may be termed the Projected 1934 Income Account, detailed as follows:

Gross revenues from sales.....	\$2,370,370,000	(at 5.4 times capital turnover ratio)
Operating expenses....	\$1,602,370,000	(at 67.6% operating ratio)
Operating income....	\$ 768,000,000	(equal to 6.02% return on capital invested)

The Projected 1934 Kilowatt-hour Sales to Ultimate Consumers, upon which to provide a basis for obtaining the projected sales' revenues, are arrived at by assuming that the utilities would be able to attract the greatest number of customers and the highest average kw. hr. sales per customer ever obtained in any year from 1926 to 1933. This assumption results in the following projection:

Consumer Classification	Projected 1934 Kw. Hr. Sales	Basis for Projection
Domestic service.....	12,170,209,000	1930 number of customers and 1933 average kw. hrs. per customer
Small light and power	14,347,828,000	1931 number of customers and 1930 average kw. hrs. per customer
Large light and power	47,270,046,000	1931 number of customers and 1926 average kw. hrs. per customer
All others.....	14,140,233,000	1933 number of customers and 1926 average kw. hrs. per customer
TOTAL.....	87,928,316,000	

Some implications of the private companies' problem become apparent when it is noted that, on the basis of to facilitate calculation of the effect on the consumers in bearing their part of the burden of supporting the 1926 level. Operating ratio is based on the relationship of gross sales' revenues to all operating expenses, including taxes and depreciation.

the foregoing assumptions, the relation of the projected sales' revenues to the projected kilowatt-hour sales results in an average revenue rate of 2.69¢ per kilowatt-hour, which is exactly

the same rate as was actually received from all consumers in 1933 from an actual sales' volume 25% less than the projected volume. The import of the coincidence in average revenue rates

TABLE V. STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY*

	1930	1931	1932	1933
Capital Invested.....	\$11,850,000,000	\$12,400,000,000	\$12,600,000,000	\$12,800,000,000†
Generating Capacity (Average Kw. for Year)	30,724,278	32,563,413	33,334,700	33,494,400
Total Kw. Hr. Generated.....	88,591,736,000	85,575,307,000	76,885,248,000	79,017,666,000
Number of Customers (Average for Year)				
Domestic service.....	20,149,352	20,084,582	19,955,545	19,800,172
Commercial—Small light and power	3,613,384	3,717,054	3,707,452	3,671,102
Commercial—Large light and power	541,051	551,497	554,650	528,570
Municipal street lighting.....	28,670	34,302	35,641	37,166
Street and interurban railways.....	728	635	637	637
Electrified steam railroads.....	24	30	27	27
Municipal and miscellaneous.....	18,248	24,324	28,471	29,379
Total number of ultimate consumers	24,351,457	24,412,424	24,282,423	24,067,153
Gross Operating Revenues.....	\$ 2,135,000,000	\$ 2,140,000,000	\$ 1,936,301,000	\$ 1,917,800,000‡
Operating Expenses (Excluding Depreciation)†.....	\$ 946,180,000	\$ 913,910,000	\$ 833,580,000	\$ 810,490,000
Taxes.....	\$ 203,500,000	\$ 210,000,000	\$ 217,000,000	\$ 250,000,000¶
Revenue from Ultimate Consumers				
Domestic Service.....	\$ 664,441,200	\$ 678,611,300	\$ 669,199,700	\$ 656,570,100
Commercial—Small light and power	575,598,100	564,523,800	528,861,300	499,684,000
Commercial—Large light and power	590,992,100	570,127,000	476,450,600	465,190,000
Municipal street lighting.....	95,458,300	99,298,700	100,918,700	94,269,500
Street and interurban railways.....	46,067,600	41,912,300	38,310,700	36,358,900
Electrified steam railroads.....	6,015,400	6,725,200	5,821,000	6,549,900
Municipal and miscellaneous.....	12,382,400	14,746,200	13,033,900	14,792,000
Total from ultimate consumers....	\$ 1,990,955,100	\$ 1,975,944,500	\$ 1,832,595,900	\$ 1,773,415,600
Kw. Hr. Sales to Ultimate Consumers				
Domestic Service.....	\$11,018,072,000	\$11,737,924,000	\$11,786,872,000	\$11,960,256,000
Commercial—Small light and power	13,943,975,000	13,543,906,000	12,932,095,000	12,474,822,000
Commercial—Large light and power	41,620,952,000	38,450,669,000	31,185,783,000	33,722,373,000
Municipal street lighting.....	2,226,545,000	2,330,228,000	2,364,480,000	2,213,007,000
Street and interurban railways.....	4,996,885,000	4,549,017,000	4,175,022,000	4,003,876,000
Electrified steam railroads.....	591,322,000	625,943,000	539,901,000	661,387,000
Municipal and miscellaneous.....	508,341,000	664,195,000	579,871,000	717,887,000
Total to ultimate consumers.....	\$74,906,092,000	\$71,901,882,000	\$63,764,024,000	\$65,753,608,000
Important Factors				
Investment per Kw.....	\$ 374	\$ 381	\$ 379	\$ 382
Capacity factor.....	32.9%	30.1%	26.4%	26.9%

* Compiled by the Edison Electric Institute.

† Computed by *Electrical World*, January 6, 1934.

‡ Estimated by *Electrical World*, January 6, 1934.

§ *Ibid.*

¶ *Ibid.*

becomes more apparent when consideration is given to the various means of obtaining the 1926 rate of return on present capital invested in the industry. The means of accomplishing this may be classified as: (1) external and (2) internal means.

1. External Means

a. Pricing the Service. Since it was assumed at the outset that the utilities would be given the chance to operate on the 1926 basis, one means of obtaining the 1926 rate of return would be to price the service with rates of that year. By using the 1926 ratio of percentage of sales in each consumer classification to the total sales' volume and the percentage of consumer classified revenues to total sales' revenues,²⁴ a basis is found for pricing the service for the projected 1934 sales' volume within the range of the 1926 rates. What this would mean with regard to increasing the 1933 average revenue rates of the principal consumer groups is shown below:

	Projected 1934 Average Revenue per Kw.Hr. of Sales	Actual 1933 Average Revenue per Kw.Hr. of Sales	Percentage Increase over 1933 Rates
Domestic service . . .	6.96c	5.49c	26.8%
Small light and power	4.47c	4.01c	11.5%
Large light and power	1.49c	1.39c	7.2%

Another way in which to realize the projected revenues with appropriate rates would be to recast rate structures, for example, charging more for service to large light and power customers and reducing, or at least maintaining, the

present schedule of rates for the residential and small light and power users. In point of fact, there is some evidence of a tendency on the part of some utilities to review rate-making policies in the light of such a possibility, on the theory that wholesale power revenues will find their own level in the field of rate competition with isolated plant costs, while rate reductions to small users of electricity have strong possibilities of expanding profitable markets for electric service.

b. Load-factor Building. Any consideration of pricing policies implies load-factor building, which would be the second external means of bringing the electric utilities back to their 1926 financial position. As load-factor building in its turn implies expansion of service without increasing capital expenditures—in other words, increasing output of present facilities—it follows that the success of the method would depend upon selling even more kilowatt-hours than was assumed for the projected 1934 sales' volume. This would mean, therefore, that, whereas the 1926 capacity factor actually was 28% and the projected 1934 capacity factor was assumed to be 30%, a capacity factor of possibly 40% would be required to guarantee an operating income affording the 1926 rate of return on the present capital investment of the industry. This estimated capacity factor requirement would not be without the realm of possibility, but its attainment would call for careful planning for merchandising service and equipment, and not a little daring in rate-making.²⁵

consumer classifications of "large light and power" and "all others" are derived demand types, load-factor building to attain a 40% capacity factor would have to be concentrated on the "domestic service" and "small light and power" groups, with the probability that

(Footnote 25 continued on page 163)

²⁴ Derived from Edison Electric Institute, *Statistical Bulletin No. 9*, August, 1933.

²⁵ Operating at a 40% capacity factor would require annual sales of 117,364,378,000 kw. hrs., an increase of 33.5% over the projected sales. On the basis of the projected sales' revenues this would result in an average revenue rate of 2.02c per kw. hr. Inasmuch as the con-

2. Internal Means

a. Lowering Operating Ratios. Failing to obtain satisfactory operating revenues by either of the foregoing measure, the utilities would have to look for the answer within their own organizations. In that respect they would have as a first recourse the lowering of operating expenses to fit the revenues they were able to realize so as to cover debt requirements and afford a profit to ownership interests in line with the 1926 return. In applying the 1926 operating factors to the illustrative figures it was assumed that the operating ratio of that year would obtain, but, it should be noted, the subsequent depression years taught the utilities some lessons in economy, apart from horizontal retrenchments, which would serve to lower the operating ratio for the projected problem below the 1926 basis. Even further cuts in costs might be effected, but the limit would be reached sooner than formerly because of the overhead impositions of the N.R.A. and of taxes.

b. Adjustments to a Lower Return. The final alternative that the utilities would have in meeting the situation would be to accept a lower rate of return than was enjoyed in 1926. The question might be raised by the regulatory commissions as to whether the utilities could now justify the 1926 rate of return. While the example figure used in relation to an operating ratio based on sales' revenues was 6.02%, the fact is that based on an operating ratio using gross operating revenues, the 1926 rate of return on capital invested was 7.34%. In the recent rate

citation case of the Public Service Company of Northern Illinois before the Illinois Commerce Commission the utility company argued for a rate of return no less than 7%, while the Commission's attorneys insisted that a rate of no more than 6% on fair value should be allowed.

In event of a lower return, management would be hopeful of a turn for the better and prayerful that bond interest would continue to be met; investors would be optimistic, to a lesser extent, of larger dividends but inclined to resist any downward change in the book and stated values of their equities, and creditors would become apprehensive of their bonds and loans and would begin to think of higher interest rates and greater security for refunding purposes.

And so we come to the statement of a conclusion to the hypothetical consideration of a revival of the private capital utility industry to the 1926 financial basis. Failing to obtain rates higher than now prevail, or to increase the business to a point greater than ever before achieved, or to accomplish operating economies (largely of a technological derivation since overhead costs have tended to become immobile), the utilities would have to get along on a smaller return than was enjoyed in 1926. This would mean either paying smaller profits or none at all, or scaling down the capital structure beginning with equity stocks and carrying through debt liabilities, the latter point being reached through sinking fund provisions (at stockholders' temporary expense) or by court proceedings.

By stating the hypothesis and by making certain assumptions to test its efficacy, an attempt has been made to eliminate from consideration of the utilities' own problem all the effects of

(Footnote 25 continued from page 162)

sales to domestic consumers would have to average better than 1,200 kw. hrs. annually per customer and sales to the small commercial user would have to be promoted to an annual average of more than 8,100 kw. hrs.

the depression and of certain phases of the New Deal. Thus, the question may now be asked whether the private electric utilities, in answering their present-day problem and in preparing for the future, do not have to take into account the fact that the capital invested in the business increased 56% from 1926 to 1933 while the physical property, measured by generating capacities, increased only 47% in the same period? Granting that generating capacities provide a feeble index to the inventory of the utilities and that the comparison just made in its implication may be oversimplifying the situation, the fact remains that extraordinary efforts would have to be exerted to avoid scaling down capitalizations if the private capital industry were to regain the pinnacle of its 1926 position even under ordinary conditions.

B. If the Utilities Are to Become Publicly Owned

No assumptions need be made in prospecting the problems which would arise if the electric utility industry were to become predominantly or entirely publicly owned and operated. However, in the absence of better information, some reliance will have to be placed on rough compilations of data as to present trends in the public ownership movement and on estimates (which may include assumptions) of potential developments in the direction of supplanting private utilities with public power facilities.

The first question arising from a consideration of the possible supremacy of public ownership is whether there is evidence of a well planned program for development of present projects. Is there proper correlation between the municipal ownership movement as such and the state and national projects. And, further narrowing the scope of

the problem, is the municipal ownership movement developing along well considered economic lines?

Taking up the last of these points first, Dr. Raver's studies show that municipally owned projects, during the downward movement between the 1923 peak and 1928, declined 45% in point of number of plants generating all or part of output, whereas the decrease in the number of purchasing establishments was less than 8%. This trend toward the purchasing type of establishment, either from private or public sources of supply, was reversed in the three-year period from 1928 to 1930, and a balance in favor of the isolated generating plant continued through 1932. Completely satisfactory data for carrying the analysis through 1933 are lacking, but a rough check of information from various sources through February, 1934, yields the results set forth in Table VI.

TABLE VI. ANALYSIS OF NEW MUNICIPAL ESTABLISHMENTS FOR 1933 AND 1934

	Number	Percentage of All New Establishments
New Isolated Plants		
Installed (1933).....	3	2.13%
Approved (for 1934)...	42	29.80
Proposed (for 1934)....	71	50.40
Total New Isolated Plants.....	116	82.33%
New Purchasing Establishments		
Installed (1933).....	0	0
Approved (for 1934)...	17	12.06
Proposed (for 1934)....	8	5.61
Total New Purchasing Establishments.....	25	17.67%
Total All New Establishments.....	141	100.00%

On the basis of the analysis contained in Table VI it appears that the isolated generating plant was overwhelmingly favored in 1933 by municipi-

palties contemplating their own power facilities. Does this trend toward isolated municipal plants signify the greater economy of these production types over the mass production source of supply? A few technical experts profess to be impressed by the economic superiority of the isolated plant, but regardless of the rightness of their claims, there is implication of an inconsistency, and a possible conflict, between the trend of municipal ownership toward isolated plants and the programs of state and national large-scale hydro-electric developments. If there be an inconsistency, a part of it may be charged to the Federal Government as the fount of loans to both types of projects. It may be granted that a conflict is not in immediate prospect, since most municipalities which have recently undertaken, or contemplated undertaking, isolated power establishments have not been within striking distance of the hydro developments.²⁶ The issue will probably arise only if and when the water power facilities are expanded to the point planned for them and these isolated plant communities become logical markets for the hydro plants' output. However this may be, the important point is that the state and federal projects have been essentially mass production types (that they have been hydro projects is only incidental), whereas the municipal ownership movement has gone counter to this trend. Mass production of electricity may include steam or oil prime movers as well, and the fact that municipalities have shied away from developing regional power districts employing these alternative methods of large-scale generation is not proof so

much of the superior economy of isolated plants as it is an indication of the inability of separate political corporations to get together in a common economic program. In Wisconsin, where the power district idea has been fostered as a means of giving municipalities the technological and systematic advantages enjoyed by the private companies, no progress has been made toward mass production for municipalities beyond the point of an enabling act passed by the State Legislature; indeed, many communities in the State have been laying plans for isolated establishments even in cases where the municipalities have been purchasing electricity from private central station companies.

A second point to be considered is whether the public hydro-electric projects are being developed with an eye to the limiting economic factors of production and transmission costs and with proper consideration to the external forces involved in finding markets for output. These points are steeped in controversial argument at the present time and there is not sufficient space here to detail the facts of the case (even presuming the available facts to be accurate), but the scope of the problem may be indicated.

Considering that hydro-electric investment costs are high and that the trend in operating costs of steam generated energy is downward in some sections of the country where water power is available, doubt may be expressed as to the economic justification of complete hydro-electric production facilities in every case simply because the water power is available.²⁷ Further, the question arises as to the justification of

²⁶ The town of McCook, Nebraska, home of Senator Norris, is an example of a municipality turning down a P.W.A. loan for an isolated plant, preferring to await completion of the state-owned (and P.W.A. financed) hydro-electric project on the Platte River in order to

be able to buy electricity for municipal distribution.

²⁷ For a more detailed discussion of this point see: A. H. Markwait, "Power Development on the Pacific Coast," *Electric Light and Power*, January, 1934.

completely exploiting hydro sites when markets for output must be reached by long transmission lines involving additional overhead charges. These two economic factors relating to production and transmission costs might not have to be considered if the territories involved were undeveloped electrically, but they would bulk large, providing the public power projects are to be self-sustaining, in situations where private companies are already operating and are prepared to compete on a legitimate cost basis.

The third point to require careful planning concerns marketing output, particularly if the ambitious programs for the installation of several million kilowatts in water power plants are consummated. To be sure, these ultimate programs extend into the future for a number of years and are predicated somewhat on an increase in per-capita use of electricity through an elevation in standards of living. But any reckoning of the probable success of operating public power plants at 60% capacity factors and better must be fairly certain of obtaining a sizable portion of the consumer's dollar, not only for service costs but for appliance and equipment expenditure. And, as a lesson early learned by the Tennessee Valley Authority, there must be an absolute guaranty that the consumers will have money of their own to spend for something more than their habitual necessities.

The final question to be answered is whether the domination of public financial interest in the electric light and power field can be afforded at the expense of present private capital investors. The answer that appeals to

reasonable persons is decidedly in the negative. Undoubtedly a duplication of capital in the industry already has been developed as taxpayers' money has been used to wrest segments of business from private capital. From this early skirmish certain ratepayers have directly benefited, while consumers elsewhere than in the public power sectors may ultimately, as the result of this stratagem, have the "yardstick" measurement applied to their rates. A program which seeks a salutary effect for ratepayers through an example of active competition or expects to produce electricity for undeveloped consumer markets, may be one thing, but a program, which, willy-nilly, has complete market control as its goal without regard for the adequacy of present production capacities and the ramified sources of the present capital investments in the industry, is quite another thing. Who can say what interests would be served in the latter event, since, in the final analysis, ratepayers, taxpayers, and private capital investors become as one in paying the costs of waste!

What the final effect of the present conflict between the several interests and various factors may be in determining the future of the electric utility industry is a matter of prophecy. There are those who foresee the complete socialization of the utilities at any cost. Others, more cautious in their outlook, expect nothing more drastic than a measurement of 1929-30 private capitalizations with a 35-inch yardstick, while another group of observers looks for a popular reaction against the public ownership movement following a strengthening of public regulation of the private corporations.

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Problems in Land-Use Planning in Northeastern Minnesota

By C. F. CLAYTON

RECENTLY the Division of Agricultural Economics of the University of Minnesota initiated a study of land utilization and related problems in the Minnesota portion of the so-called cut-over region of the Lakes States.¹ Sixteen counties in northeastern Minnesota are included² in the Minnesota portion of the region (Figure I).

The General Problem

The system of county and township government prevails in these counties. A glance at the map showing the distribution of population (Figure I) will suffice to suggest the character of some of the problems which confront these local governmental units. The conditions associated with the isolated settler, made familiar by numerous studies elsewhere, are repeated here: the high cost of schooling his children; constructing and maintaining roads for him; the public burden of providing him with work; and, when all else fails, sustaining him with charity. In these counties, too, are other heritages of our pioneering days, to be found among other population groups similarly situated. A citizen remarks, with a note of pride: "Ours is a pioneer country, you know." He does not know that the frontier of economic pioneering no longer lies along the extensive margin of agricultural cultivation. The pressure of expanding population and the rising tide of land values no longer lift the

mortgage on the farm and convert a life of penury and privation into one of comfort, if not of affluence.

The idea of the homestead has held a prominent place in the evolution of American culture. The family, the house, the plot of ground present a pretty picture in the frame of "rugged individualism." Our honest citizen does not know that both the picture and the frame belong in our album of other days. He doesn't know it and, what is more, he doesn't believe it. These cultural daguerreotypes still arouse a keen nostalgia in the breasts of an appreciable proportion of the American people. The simplicity and even the hardships of life on the frontier, in contrast to the relative complexity and ease of urban life, still have a strong appeal for many people. These imponderable factors must be recognized in land-use planning. At the same time, a reasonable balance must be struck between the unrestrained indulgence of individual preferences and the liabilities which such indulgence places on the nation, the state, and the community.

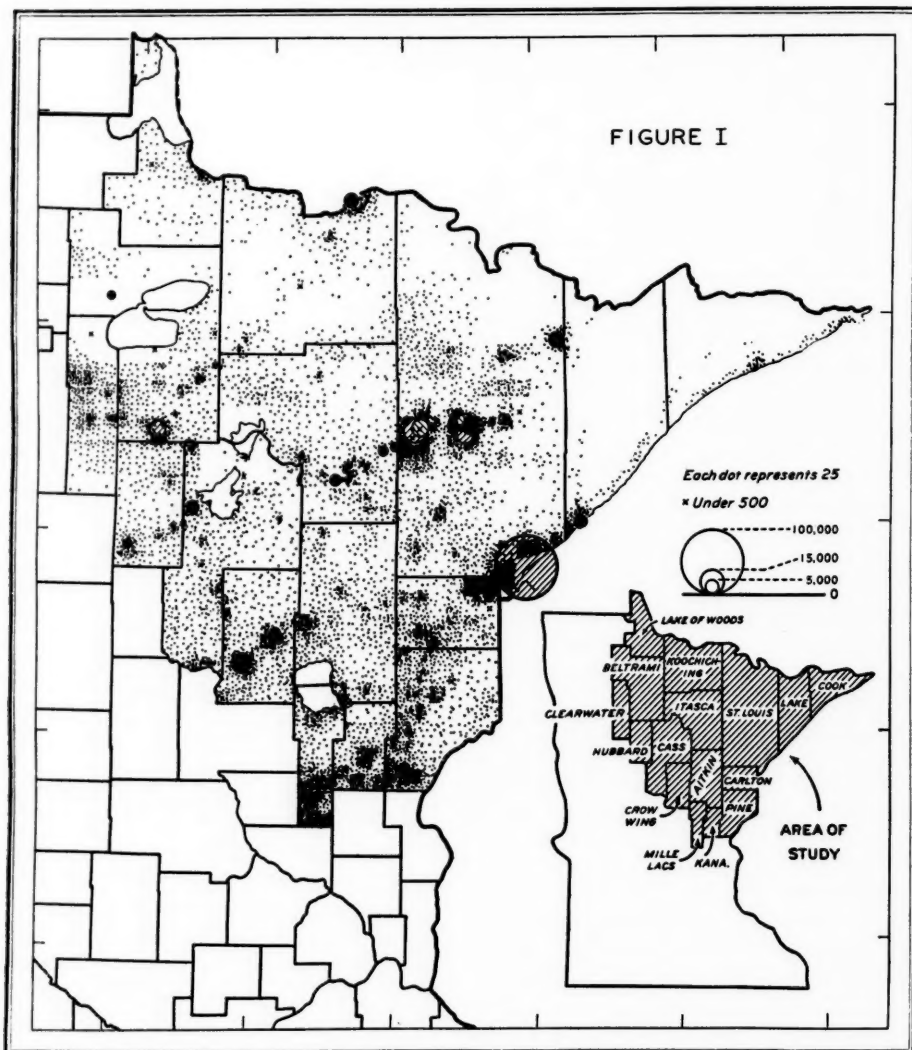
"Rugged individualism," whether in city or country, in industry or agriculture, is largely the product of the frontier. Although the frontier and the conditions of life associated with it have gone, the belief in the "right" of the individual to live where and how he pleases survives. Daniel Boone and his contemporaries could exercise the

¹ The Bureaus of Agricultural Economics and of Agricultural Engineering of the United States Department of Agriculture are cooperating in this study.

² The sixteen counties are: Aitkin, Beltrami, Carlton, Clearwater, Crow Wing, Cass, Cook, Hubbard, Itasca, Kanabec, Koochiching, Lake, Lake of the Woods, Mille Lacs, Pine and St. Louis.

prerogative of establishing homes in the wilderness without imposing upon the state or other governmental unit the obligation of building and maintaining roads, providing access to markets, building and supporting schools, and

extending relief in periods of sickness, distress, or destitution. Under modern conditions it is impossible for man to live unto himself alone. A settler on the most isolated tract of land is still a part of some organized community.



The 16 northeastern Minnesota Counties, embracing 10,019,124 acres, contained 419,801 inhabitants in 1930. The chief points of agglomeration are Duluth and the villages along the Iron Range. This area, embracing 36.8% of the total land area in Minnesota, is nearly as large as the entire State of Maine. The region is glaciated and the diversity of soil types in some sections increases the difficulty of classifying the land. Soils of good agricultural productivity, interspersed with soils too wet or too stony for cultivation, contribute to the diffusion of settlement which characterizes many sections of the region.

This community has responsibilities toward the settler and the settler in turn has obligations toward the community. To achieve a just balance between the exercise of free initiative on the part of the individual and the discharge of the responsibilities inherent in organized government must be recognized as a central objective of land-use planning.

The principles underlying land-use planning will not, however, so much impose new restraints upon the individual as broaden the scope or range of conditions under which existing restraints apply. Land-use planning implies a determination of the use for which land is best adapted and the development of a method of restricting the use of the land to conform to a general pattern of utilization. One method of segregating land for a particular use or type of use is to place it in public ownership and control. This method of regulating land use is effective, but in view of the fact that over 70% of the land area of the United States is in private ownership, control of land use exclusively by public acquisition would prove tremendously expensive. Nevertheless, through acquisition of lands for public forests, parks, game preserves, recreation centers, etc., by federal, state, and local governments, much has been accomplished in the regulation of land use. Unquestionably, much more can be accomplished along this line.

The recent allotment of \$25,000,000 for the acquisition by the Federal Government of lands unsuited to agricultural use inaugurates a program of far reaching significance. The development of this program probably will involve a wider application of the zoning principle to the utilization of rural lands. The application of the zon-

ing principle in cities has spread rapidly since 1916. The legality of the general principle has been definitely established by decisions of various state courts and by the United States Supreme Court in the *Euclid Village* case.³ In 1932, eight counties in the United States had zoning ordinances. These ordinances, as well as the ordinances of some cities and smaller municipalities, embraced rural territory, although the purpose of the ordinances was neither to restrict nor to regulate the use of land for agriculture or forestry. In 1933 the County Board of Supervisors of Oneida County, Wisconsin, adopted a county zoning ordinance which provides for regulation of the use of land for agriculture, forestry, and recreation.⁴ It is expected that a number of other counties in northern Wisconsin may soon adopt similar ordinances.

Public acquisition of land in combination with a plan of zoning should, however, be supplemented in many areas by a plan for relocating farm families who occupy isolated holdings embraced by a non-agricultural zone. The advantages of a combined program of public acquisition, zoning, and relocation of isolated families may be illustrated by preliminary estimates developed for 14 counties in northeastern Minnesota. According to this preliminary estimate an expenditure of approximately \$4,636,000 for public acquisition of land in isolated farms, combined with a zoning program, would have the effect of eliminating practically 12,000,000 acres of land from potential agricultural use and saving \$778,000 annually in public expenditures. An annual saving of this amount, it may be noted, is equal to the annual

³ *Euclid v. Ambler Realty Co.*, 272 U. S. 365, 47 Sup. Ct. 114 (1926).

⁴ Rowlands, W. A., "County Zoning for Agriculture, Forestry, and Recreation in Wisconsin," *Journal of Land & Public Utility Economics* 272-282 (August, 1933).

income at 5% on \$15,560,000, an investment more than $3\frac{1}{4}$ times the amount of the estimated expenditure involved. The estimated potential saving includes a reduction of \$619,000 in school costs, \$119,000 in costs of township government, and \$40,000 in cost of fire fighting.⁵

In planning the Minnesota study an effort was made to avoid procedure along purely fact-finding lines, in the sense of gathering data which would serve merely to exhibit the fact that problems of the types described in this article exist in northeastern Minnesota. The field work was planned with a view to studying the probable consequences of specific adjustments to particular situations. To this end, before field work began, a considerable volume of physical and economic data was assembled and utilized to subdivide and describe the region.

Natural Areas

The physical characteristics of land, of course, greatly affect its utilization, particularly for agricultural purposes. Preliminary to field work, attention was first given, therefore, to the physical characteristics of the region. In order to differentiate the region into areas having similar physical characteristics, the soils in each township were rated according to their inherent natural productivity. This rating was based on improved land used in production of the agricultural crops normally grown in the region. The best lands in the state were rated Number 1, and the poorest Number 10. Theoretically, the potential yield of Number 10 land, on the basis of its inherent natural productivity, is zero. On the basis of these ratings and collateral physical data the

region was subdivided into 14 natural areas. A composite index of the physical productivity of the soils in each natural area was then computed.

This generalized physical classification provided a basis for some preliminary differentiation of problems. In one area, embracing 3,961,134 acres, for example, 53.6% of the land was described as rock outcrop, 18.7% as rough, 8.3% as hilly, and 9.5% as swampy. These figures indicate that approximately only 10% of this enormous land area is suitable for agricultural use. When account is taken of the further fact that the average length of the growing season for the area was only 99 days and that the physical productivity rating of the area as a whole was 9.4, all possibilities of extensive agricultural utilization are practically eliminated. In other areas, on the other hand, the land was physically much better adapted to agricultural use. In a number of areas, for example, with a growing season of 121 to 124 days, 75 to 85% of the land was described as level or rolling, with a physical productivity rating of 5.4 to 5.6.

The variability of the soils of the region, both as to quality and degree of stoniness, contributes a large margin of error, however, to inferences respecting the use of land which might be drawn from the figures for natural areas. Of course, non-physical factors also exert a large influence on land use. Economic data were therefore assembled and utilized to subdivide the region further.

Land-Use Districts

On the basis of the preliminary economic data, boundaries of 26 land-use districts were established. In two instances the boundaries of natural

⁵ For other aspects of the relation of sparse settlement to cost of government, see Goodman, Robert B., "The Regulation and Control of Land Use in Non-

Urban Areas," 9 *Journal of Land & Public Utility Economics* 266-271 (August, 1933).

areas and land-use districts were identical. The present major uses of land were worked out for each of these districts and the physical productivity rating of each was also computed. The acreage of each district was classified to show land in farms, forest lands (excluding woodland in farms), open meadow, muskeg,⁶ and urban lands. It was not practicable to classify mineral and recreational lands on an acreage basis. To indicate the relative recreational possibilities of the different districts, a rough index of recreational use was prepared. The index represents a ratio of the rodage of developed lake-shore line in a district to the total land area of the district expressed as a percentage of the ratio for the region as a whole.

The percentage of the land area of each district in farms ranged from 1.3 to 82.2%; the acreage of forest lands ranged from 16.2 to 98%. For the region as a whole, land in farms embraced 18.5% and forest lands 73.2% of the total acreage. The acreage of muskeg amounted to as much as 42.2% of the total area of one district but in a number of districts there was none. The acreage of land in urban use was small. The maximum figure for any district was 5.5% of the total land area, but the influence of city population upon agricultural development gives significance to the acreage in urban use.

Preliminary data, obtained from district forest rangers through the courtesy of the Minnesota Department of Conservation, made possible the computation of the preliminary index of recreational use and also provided rather comprehensive data on forest cover. Figures on tax delinquency for 1929, compiled by the Lakes States Forest Experiment Station, and figures from other sources

showing the acreage of land in public ownership in 1933 were also tabulated by land-use districts.

Character of Forest Cover. Forest and woodland in farms and not in farms embraced 82.3%, other land in farms 9.4%, and other land not in farms 8.3% of the total land area.

In the region as a whole, very little saw timber remains. Saw timber areas embraced only 7.9% of the total area (Table I), but the several districts vary considerably in the proportion of acreage in saw timber. In one district, for example, the saw-timber area amounted to $\frac{1}{3}$ of the land area of the district and in a number of others considerably more than 10% of the acreage was of saw-timber size.

Cordwood areas range from $\frac{3}{4}$ to less than 5% of the total land area of the various districts. For the region as a

TABLE I. PERCENTAGE DISTRIBUTION OF THE ACREAGE OF FOREST AND WOODLAND BY AREAS AND CHARACTER OF GROWTH, 16 NORTHEASTERN MINNESOTA COUNTIES, 1933

Area or Character of Growth	Percentage of Land Area of 16 Counties
Saw timber areas	
Old growth.....	7.4%
Second growth.....	.5
TOTAL.....	7.9
Cordwood areas.....	35.9
Restocking areas.....	
Satisfactory.....	8.0
Fair.....	16.7
Poor.....	8.4
TOTAL.....	33.1
Non-restocking areas.....	3.1
Burned over and denuded areas.....	2.3
Total forest and woodland areas...	82.3
Other land in farms.....	9.4
Other land not in farms.....	8.3
GRAND TOTAL.....	100.0%

⁶ Marsh, swamp and bog not embraced in any other classification.

whole, the percentage distribution of the acreage of forest and woodland, classified by areas and character of growth, and of other land in farms and not in farms in 1933, appears in Table I.

Ownership of Land and Tax Delinquency. Excluding the acreage of land in urban use (143,099 acres) there remain 18,388,676 acres in the region. Of this enormous acreage 80.8% was in private ownership, 11.5% in state ownership, and 7.7% in federal ownership in 1933. In only one district was less than 50% of the land in private ownership in 1933. This district is in East Koochiching County and embraces part of the Kabetogama State Forest, in which 78% of the land is owned by the state.

In 1929, land delinquent for general property taxes ranged from 90% to less than 5% of the total acreage of taxable land in the several districts. In the region as a whole 44% of the total acreage of taxable land was delinquent for general property taxes in 1929.

Forest Purchase Units

In the region there are 16 state forest purchase units,⁷ embracing an area of 3,855,161 acres. Land in farms comprised approximately 5%, and forest lands 86%, of the acreage of these purchase units. In most of the purchase units only a very small proportion of the acreage was in farms, the highest proportion in any unit amounting to 25%. The physical productivity rating of the land in these units ranged from 5.5 to 9.4. In a number of state forest purchase units the recreational use of the land, as measured by the index, was high, but in six units the index was zero and in two units it was below the average for the region as a whole. The limited agricultural possibilities

in these purchase units were reflected in the low physical productivity rating of the land and in the small proportion of the acreage embraced by land in farms.

In addition to the state forest purchase units, there are two federal forest purchase units, the Superior and Chippewa National Forests. The former embraced 1,713,766 acres and the latter 310,511 acres, or a total of 2,024,277 acres, in 1933. Thus the acreage definitely set aside for public (federal and state) acquisition was 5,879,438 acres in 1933. Land in the federal forest purchase units rated very low in terms of physical productivity, the figures being 9.6 for the Superior National Forest and 7.2 for the Chippewa National Forest. The acreage of land in farms comprised less than 1% of the total acreage of these units.

It is of interest to compare the percentage distribution, by areas and character of growth, of the acreage of forest and woodland embraced by these state and federal purchase units (Table II) with similar figures for the region as a whole (Table I).

The general character of the forest cover for the region as a whole is not markedly different from that of the state forest purchase units. Naturally, the proportion of the total area in forest and woodland and the proportion embraced by saw-timber and cordwood areas is somewhat larger in the state forest purchase units than in the region as a whole; but these differences are not as large as might be expected. The differences in these respects are, in fact, much more pronounced when state forest purchase units are compared with federal forest purchase units. The

⁷ The term "purchase unit" is used to denote an area established by legislative or administrative action,

within which land may be acquired by purchase or otherwise for the purpose of creating a state or federal forest.

former units are of more recent creation than the latter; consequently the beneficial results of measures of forest protection and rehabilitation under public administration have had less time to materialize in the state than in the federal purchase units. It is probable, too, that the forest stands in the federal

TABLE II. PERCENTAGE DISTRIBUTION OF THE ACREAGE OF FOREST AND WOODLAND, BY AREAS AND CHARACTER OF GROWTH, STATE AND FEDERAL FOREST PURCHASE UNITS, 1933.

Area or Character of Growth	Percentage Distribution of Acreage in State Forest Purchase Units	Percentage Distribution of Acreage in Federal Forest Purchase Units
Saw timber areas		
Old growth.....	10.0%	9.3%
Second growth.....	.2	.0
TOTAL.....	10.2	9.3
Cordwood areas.....	45.8	69.4
Restocking areas		
Satisfactory.....	6.5	6.6
Fair.....	15.8	8.8
Poor.....	7.3	1.8
TOTAL.....	29.6	17.2
Non-restocking areas.....	1.8	.6
Burned over and denuded areas.....	1.4	.6
Total forest and woodland.....	88.8	97.1
Other land in farms.....	2.3	.3
Other land not in farms..	8.9	2.6
GRAND TOTAL... ..	100.0%	100.0%

units, at the time these units were established, were, in general, superior to the stands in the state units, at the time the latter were established. The federal units, compared with the state units on the basis of the acreage of timber types, include a much larger proportion of timber of the highland types (Table III). It will be noted, also, that the proportion of Norway-white pine in the acreage of the federal

TABLE III. PERCENTAGE DISTRIBUTION OF THE ACREAGE OF FOREST AND WOODLAND, BY FOREST TYPES, STATE AND FEDERAL FOREST PURCHASE UNITS, 1933.

Type	Percentage Distribution of Acreage in State Forest Purchase Units	Percentage Distribution of Acreage in Federal Forest Purchase Units
Highland types		
Jack pine.....	9.7%	12.3%
Norway.....	1.0	1.1
Jack-Norway pine....	9.7	3.3
White pine.....	.6	.0
Norway-white pine....	3.4	26.5
Mixed hardwoods and conifers.....	29.4	28.8
Hardwoods.....	3.9	.9
Aspen-birch.....	20.0	19.6
TOTAL.....	77.3	92.5
Lowland types		
Spruce (including balsam).....	6.8	4.5
Tamarack.....	.5	.1
Spruce-tamarack.....	7.4	2.1
Spruce-cedar.....	5.8	.1
Tamarack-cedar.....	.6	.0
TOTAL.....	21.1	6.8
Burned over and denuded..	1.6	.7
GRAND TOTAL....	100.0%	100.0%

units is much greater than in the acreage of the state units.

Although the establishment of these purchase units in effect determines the major type of land use for the areas set aside, the program of acquisition may require an extended period. In the state forest purchase units 75% of the land was in private ownership in 1933, although 56% of the taxable land in these units was delinquent for general property taxes in 1929 (Table IV). The highest proportion of the acreage delinquent in any unit was 75% and the lowest was 35%.

In the Superior National Forest purchase unit, 31% of the land was in private ownership and 15% in state ownership in 1933. In the Chippewa purchase unit the figures were 9% and

TABLE IV. OWNERSHIP OF LAND AND TAXABLE LAND DELINQUENT FOR GENERAL PROPERTY TAXES, BY STATE AND FEDERAL FOREST UNITS.

Name of Unit	Percentage of Total Acreage (1933) in			Percentage of Taxable Land Delinquent for General Property Taxes in 1929
	Federal Ownership	State Ownership	Private Ownership	
State Forests				
Beltrami Island.....	9.5%	.....	90.5%	74.5%
Pine Island.....	2.4	70.7%	26.9	58.7
Kabetogama.....	3.7	18.0	78.3	54.5
Burnside.....	.7	11.5	87.8	44.7
Grand Portage.....	8.0	18.1	73.9	35.3
Third River.....	.2	20.3	79.5	59.2
George Washington Memorial.....	.2	20.9	78.9	49.0
Finland.....	.....	23.0	77.0	41.2
White Earth.....	1.1	19.4	79.5	52.4
Cloquet Valley.....	.....	4.5	95.5	75.3
Foot Hills.....	.4	.7	98.9	61.4
Land O'Lakes.....	.1	.9	99.0	57.6
Savannah.....	*	5.2	94.8	60.3
Fond du Lac.....	.2	3.1	96.7	49.3
Pillsbury.....	.2	.8	99.0	58.0
All state units.....	2.4	22.7	74.9	56.3
Federal Forests				
Superior—north part.....	56.4	16.7	26.9	27.3
Superior—south part.....	53.6	14.6	31.8	28.5
North and south parts.....	54.2	15.1	30.7	28.2
Chippewa.....	66.9	23.8	9.3	32.0
All federal units.....	56.2	16.4	27.4	28.4
State and federal units.....	20.9	20.5	58.6	51.8

*Less than 1/10 of 1%.

24%, respectively. Twenty-eight per cent of the land in private ownership in the federal forest purchase units was delinquent for general property taxes in 1929.

As previously suggested, the establishment of these federal and state forest purchase units gives definite direction to policies and programs of land utilization for extensive areas in the northeastern counties. The scope and character of the land policies and programs of the state may be illustrated by reference to recent state legislation relating to state forests and other important aspects of land utilization.

State Land-Use Policies and Programs

Consolidation of Public Holdings. Principles of administration and manage-

ment of the national forests have become pretty well established and generally accepted; hence, the 2,024,277 acres of land in federal forest purchase units fall in a definite category of utilization. For these units the principal problems of land use relate to the establishment of farm-forest communities within or adjacent to the boundaries of the forests and to the acquisition of privately owned land within the purchase units. In the Chippewa forest unit 24% and in the Superior forest unit 15% of the acreage was in state ownership in 1933. Chapter 246 (S. L. 1929) authorizes and directs the Minnesota Department of Conservation to sell or exchange state-owned lands lying within the boundaries of the federal

forest purchase units. In order to facilitate consolidation of the holdings of the federal and state governments, Chapter 443 (S. L. 1933) proposes an amendment to Article VIII of the Constitution of the State to authorize the exchange of public lands of the state for the lands of the United States and other privately owned lands as the Legislature may provide. Involved in the proposed amendment is the particular problem of exchanging lands held in trust by the state. Under the amendment the exchange of such lands is permitted, the provision being made that the trust shall attach to the lands so acquired.

As in the case of the national forests, the creation of 16 state forest purchase units, embracing 3,855,161 acres, in effect establishes a definite program respecting the utilization of these lands. Thirteen of these state forests were established by Chapter 419 (S. L. 1933), which provides for their management and control, and for acquisition by the state through condemnation, purchase, or gift of lands within these forest units. Thus, so far as the formulation of a policy of major use is concerned, it may be said that the policy implied by the actual and proposed public acquisition of land for federal and state forests is already projected for approximately $\frac{1}{2}$ of the total land area of the region.

State Assumption of County Bonded Ditch Indebtedness. Under Chapter 258 (S. L. 1929) the Red Lake Game Preserve was created out of parts of Lake of the Woods, Beltrami, and Koochiching Counties. The decision to set aside this area for the purposes enumerated in the act was not motivated solely by a generally recognized need for the state to use these lands as a game preserve. The counties in which the pre-

serve is located could not meet the payments on their ditch bonds. To avoid default the state assumed the bonded obligations, and the preserve was created. The creation of the preserve did not, however, vest title to the land in the state, although the state (through the Department of Conservation) is authorized to exercise certain regulatory functions designed to conserve game and bird life. These regulatory functions are also extended to provide for afforestation and reforestation of state-owned lands within the preserve. Under the act the state is authorized to issue certificates of indebtedness not to exceed \$2,500,000 at interest not to exceed 5% for the purpose of paying defaulted principal and interest on drainage ditch bonds covering lands within the preserve.

Chapter 407 (S. L. 1931) provides for the establishment of reforestation areas

"for the purpose of vesting and revesting the state with title to lands suitable primarily for the development of forests and prevention of forest fires, and for experimenting in and practically advancing afforestation and reforestation, or for the purposes of impounding, controlling and regulating the waters of meandered lakes and the flow of natural streams in the state, or for either or any such purposes."

To be eligible for entry the lands must lie in a county in which on January 31, 1931 the taxes on more than 35% of the taxable land were delinquent and of which on the same date the bonded ditch indebtedness, including accrued interest, equaled or exceeded 9% of the assessed valuation of the county, exclusive of monies and credits. The act provides that certificates of indebtedness not to exceed \$1,500,000 in the aggregate may be issued for the payment of interest and principal on drainage ditch bonds in the areas that may be established under the law.

Redemption and Reversion of Tax-Delinquent Lands. Chapter 119 (S. L. 1927) allowed a five-year period for the redemption of tax delinquent lands. The act provided that at the end of that period unredeemed lands were to revert to the state to be held in trust for the benefit of the several taxing interests. Lands within reforestation areas (Chapter 407) and lands within the Red Lake Game Preserve (Chapter 258) which revert to the state under Chapter 119 become the absolute property of the state. Chapter 283 (S. L. 1931) appears also to give to the state absolute title, under specified conditions, to the lands within the boundaries of state forest purchase units that have reverted to the state through tax delinquency and, after being reoffered for sale, have not been redeemed. Chapter 414 (S. L. 1933) extends the period of redemption of lands sold for the taxes for the year 1926 and the lands sold for the taxes for the year 1927 pursuant to Chapter 119 (S. L. 1927) to seven years from the date of sale.

The Legislature of 1933 also passed a number of other acts which modified or amplified the state land policy embodied in the foregoing legislation.

Reorganization of Local Government. Chapter 228 empowers town boards to "alter, vacate, and abandon any town road upon petition of all the owners and occupants of all the land contiguous thereto". Chapter 30 provides that "any county having less than seven organized school districts may consolidate such districts into one county district", provided the proposed consolidation is approved by a majority of the qualified voters of the county. Chapter 273 permits the consolidation of counties, provided 60% of the votes cast upon the question of consolidation in each county affected by the proposal

is in favor of consolidation.

Land Classification. In the matter of land classification, the Legislature of 1933 provided two procedures, involving distinct agencies for classifying land and different, although not necessarily conflicting, categories of classification.

Chapter 418 (S. L. 1933) provides that "the County Board of any county with the approval of the Conservation Commission of the state may establish conservation zones and agricultural zones," the former to be devoted primarily to timber growing and other conservation purposes and the latter to be devoted primarily to agricultural purposes. Section 2 of the same chapter provides that

"the Executive Council, upon recommendation of the Conservation Commission, and of the County Board of the county affected, may authorize the exchange of lands, to which the State shall have acquired absolute title, in its own right, or in trust under the delinquent tax laws, within the agricultural zone for privately owned lands in the same county within the conservation zone."

Chapter 436 (S. L. 1933) creates a Land-Use Committee charged with the duty of classifying "all public and private lands in the state with reference to the use to which such lands are adapted, but principally as to adaptability to present known uses such as agriculture and forestry." Chapter 436 also provides that "in each county of the State having 25% or more of its land area delinquent for non-payment of taxes, or where 25% or more of its land area is owned by the State and/or the United States, there shall be a Committee of Land Classification" to be composed of specified county officials. The act further provides that the Land-Use Committee "shall consult, advise with, and cooperate with the Land Classification Committee . . . to

determine its land classification . . . but the determination of the Land Classification Committee shall be final." In this manner the act provides that "the Land-Use Committee shall make and determine a temporary land classification . . . When such temporary classification has been adopted by the Committee, none of the lands classified as non-agricultural shall thereafter be sold or leased by the State for agricultural purposes."

Under the legislation described, the state has embarked on a program which will lead inevitably to the acquisition of large acreages of land in absolute state ownership. In addition to the land to which the state may acquire absolute title in 1935, under the provisions of Chapter 258 (S. L. 1929) and Chapters 283 and 407 (S. L. 1931), a large additional acreage may revert to the state under Chapter 414 (S. L. 1933) to be held in trust for the various taxing units in the proportion of their respective interests. The magnitude of the acreage to which the state probably will acquire title, either absolute or as trustee, is indicated by the fact that in 1929 a total of 6,539,504 acres, or 44% of the total taxable area of the 16 counties, were tax delinquent. It is not improbable that in 1935 the state will own from 8,000,000 to 10,000,000 acres of land, in part outright, but mostly as trustee.

Problems of Adjustment

This summary review of conditions in the northeastern Minnesota counties and of current developments in state policies for handling the problems emerging from these conditions brings into sharp relief the following situations:

1. Under existing legislation probably 8,000,000 to 10,000,000 acres of privately owned but tax-delinquent land will

revert to the state in 1935. Obviously, problems of administration and management of this large acreage are of considerable magnitude.

2. Some of this tax-delinquent land will fall within the boundaries of established state forest purchase units and some within the boundaries of federal forest purchase units. On the other hand, as is evident from the figures of Table IV, a considerable proportion of privately-owned land within the boundaries of established purchase units is not tax delinquent and, hence, will not revert to the state under the tax-delinquency laws.

From this situation emerge several problems. (a) There is the problem of exchanging state-owned lands lying outside the boundaries of state purchase units for privately-owned lands lying within the boundaries of such units. (b) As shown by the figures of Table IV, there is the problem of exchanging state-owned lands for federal-owned lands; that is, within the boundaries of state forest purchase units there is a considerable acreage of federal-owned land and, conversely, within the boundaries of federal forest purchase units there is a considerable acreage of state-owned land. Moreover, the federal forest purchase units embrace a considerable acreage in private ownership, some of which may revert to the state through tax delinquency. Thus, the consolidation of federal and state holdings presents a problem of exchanging state and federal lands. (c) The problem of relocating families now occupying tracts of land within the boundaries of federal or state forest purchase units must be faced. It is generally regarded as futile to buy up occupied lands in a non-agricultural area without at the same time zoning the area against future occupation for the purpose of

farming. In the absence of this restriction families again quickly gravitate to the area, occupying privately-owned lands over which the public has not control, and thus imposing the old burdens on the public. To effectuate maximum economies in costs of schools, roads, fire protection, and local governmental administration, it is highly desirable, also, to institute measures to guide the resettlement of families removed from non-agricultural zones. The program of the Subsistence Homesteads Division of the United States Department of the Interior⁸ is admirably adapted to this purpose. In the relocation of families certain principles should be observed: families should be placed on good land adjacent to established agricultural communities; in so far as possible, the distribution should be made with a view to reducing the need for construction of additional roads and schools to a minimum; families located in one county should not, unless special circumstances justify a departure from the rule, be removed to another county.

In counties where circumstances appear to justify the relocation of settlers in another county, the question is immediately raised as to whether county consolidation is not a logical step. If the acreage of agricultural land in a county is insufficient to provide for the relocation of settlers within the county, there is a strong probability that the economic resources of the county do not justify a separate county administration.⁹

3. In addition to the lands embraced by state and federal forest purchase units, some counties will still contain considerable acreages of land which

are now sparsely settled, but which are unadapted to agricultural use. These scattered settlements and settlers present problems of zoning and relocation similar to those presented by occupied land within purchase units. A program designed to close out such isolated settlements should embody three major features: (a) zoning of unoccupied lands adjacent to the settlement as non-agricultural; (b) establishment of a federal-state-county program to provide for these families advantageous terms for relocating on approved lands; (c) a sufficient period of time to work out the adjustments, without the necessity of resorting to coercion.

Scope and Character of Field Work

The foregoing outline of conditions, policies, and programs has pointed to the major problems which were the object of field investigation in the land-utilization study.

Mapping. In view of the importance of zoning as a basis of planning, the preliminary physical and economic data descriptive of each township were supplemented by field investigations as a basis for establishing restricted and unrestricted zones. The principal types of land use contemplated for restricted zones include forests, parks, resorts, and wild-life refuges. Lands unadapted to any present productive use would also be embraced within the restricted zone.

The principal uses contemplated for unrestricted zones for northeastern Minnesota included full-time farming, as well as farming in various combinations with other types of employment, and recreation.

The field data provided a basis for a redefinition of the boundaries of land-

⁸ General information concerning the purposes and policies of the Division of Subsistence Homesteads, United States Department of the Interior, *Circular No. 1*, November 15, 1933. See also, Wilson, M. L., "A New Land-Use Program: The Place of Subsistence

Homesteads," 10 *Journal of Land & Public Utility Economics* 1-12 (February, 1934).

⁹ Chapter 273 (S. L. 1933), as noted above, provides for the consolidation of counties.

use districts. To facilitate the location of boundaries of zones and the relocation of the boundaries of land-use districts, the approximate location of all land in farms was mapped from data available in the county records.

Adjustments. Various types of problems were studied in the field with a view to measuring the feasibility and consequences of specific adjustments.

1. *Full-time Farming.* In those localities in which the land and other factors provided a basis for full-time farming, problems of farm organization and management were investigated primarily from the standpoint of readjustments in the operation and management of the individual farm.

2. *Part-time Farming.* In northeastern Minnesota part-time farming is of four main types which may be designated as urban-rural, farm-forest, farm-recreational, and farm-mining. These terms are in the main descriptive of the type of employment involved, although it may be said that the urban-rural type embraces groups whose principal employment is in some urban occupation but who reside on a small farm or in a rural community and who engage in a limited amount of farming, producing products principally for home consumption. Field investigations were

limited to sample studies of part-time farming in the vicinity of Duluth and towns on the Iron Range.

3. *Relocation of Settlers.* The problem of moving settlers from settlements unadapted to agricultural use to developed agricultural localities was studied for sample areas. An attempt was made to determine the actual costs involved in effecting the shift, having in mind a specific area in which the families would relocate and the specific savings in local governmental costs to be achieved on the basis of an assumed plan for roads, schools, local government, etc. The probable change in tax-base resulting from the better quality of the land and more favorable location of farms in the projected settlement was also investigated.

4. *Taxation and Local Government.* Adjustments in taxation and local government were studied in relation to other adjustments and to their collateral effects. Broadly, the problem was to examine from the standpoint of local governmental revenues and costs the consequences of proposed adjustments in land use, relocation of settlers, consolidation of administrative units, redistribution of governmental functions, or shifts of land from private to public ownership.

A Plan for Flexible Public Utility Rates

By CHELCIE C. BOSLAND

IN A RECENT decision the Michigan Public Utilities Commission gave passing attention to a problem in regulation which has not received adequate consideration. This problem deserves attention in view of the present crisis in public control and the widespread criticism of the accepted methods and standards of regulation.¹

In an order dismissing, with certain exceptions, a request by the City of Detroit for a reduction in rates for electricity, the Michigan Commission took the opportunity to comment favorably upon some plan to bring flexibility into the general level of public utility rates to take into consideration changed economic conditions with resulting changes in the willingness and ability of users to pay for the service. This has long been urged by students of regulation as a politically and economically desirable step.²

Failure of public utility rates to decline has been one of the outstanding causes of public distrust of our public utility enterprises and regulatory commissions. To the average consumer the fact that rates have not declined in proportion to other prices and incomes is conclusive evidence that there is something wrong.³ Any statement to the effect that utilities are industries "affected with the public interest" and so have rates determined in a different manner than are competitive prices or

that public utilities are entitled to earn a "fair return on a fair value" of their property is likely to appear to him as a smoke screen of sophistry. Why should they not be called upon to make sacrifices in times of depression as well as anyone else? The answer that they are not allowed excessive profits like other business in time of prosperity and therefore must continue to get high rates in time of depression is also unconvincing, whatever theoretical validity it may have. This "last straw," in a time of popular excitement over "power trust" abuses, real and imaginary, may break the back of accepted regulatory procedure.

The results of this distrust are apparent. New restrictive legislation, wholesale dismissal of commissioners, discriminatory federal, state, and local taxation, emergency rate reduction orders, municipal ownership, the Tennessee Valley Authority, and other federal power projects are all attempts to bring about rate reductions, if not to apply the birch rod to the bad boy who has been pampered by existing regulatory methods.

There is a real question if the same kind of attacks will not arise during every period of business depression if some method for bringing flexibility into public utility rates is not found. Even if all the other existing problems of regulation will or can be solved, the

¹ *City of Detroit v. Detroit Edison Company*, 12 *Public Utilities Fortnightly* 193-235 (November 9, 1933).

² Brown, H. G., "Railroad Valuation and Rate Regulation", 33 *Journal of Political Economy* 505-530 (October, 1925); Cabot, Philip, "Dangers of Rigid Rate Structures", 12 *Public Utilities Fortnightly*,

August 17, 1933; "Public Utility Rate Regulation", 7 *Harvard Business Review* 257 (April, 1929) and *Ibid.* 413 (July, 1929).

³ The average annual revenue per kw. hr. of domestic service declined from 6.3c in 1929 to 5.58c in 1932, or about 11%.

utility critics could agitate about "unfair prices," "monopoly prices," "power trust oppression," and all the other sins of privately owned utilities if rates do not fall with other prices. And they will then, as now, receive a large and responsive hearing.

What can be done about it, assuming that we continue to have periods of business depression and that we are not going to throw overboard completely our present methods of regulation? Numerous proposals have been advanced.

Various Proposals for Securing Flexibility Considered

One proposal is that we should cease to concentrate attention upon rate-bases and pay more attention to the nature of the demand for service. This, it is held, would result in high rates during periods of prosperity and low rates in periods of depression. Ability to pay would become a major factor in determining the general level of rates as well as in determining the relative rates in the rate structure. This proposal cannot be discussed here in detail. That it would bring variable rates can hardly be questioned. That it would bring the correct kind of variability may be doubted. Once the intensity of demand is substituted as the major general rate determinant, there is an inevitable tendency to go from regulated to what amounts to unregulated monopoly price. The very purpose of regulation is to prevent charging those who are without protection the prices which would be set by unrestricted monopoly. It would be unfair to assume that those who emphasize this point of

view look with favor upon charging "all that the traffic will bear." They do not. And yet, in relegating the rate-base to the background, they seem to have done away with the only workable test of the reasonableness of rates over a period of time.

The character of the demand cannot be and is not left out of consideration under present regulatory procedure. The elasticity and stability of demand must be taken into account both by utility managements and regulatory commissions. No alert private management is likely to charge rates so high that considerably less of its service would be taken and its profits decreased.⁴ That would not be correct price policy even under unregulated monopoly. In classes of service for which demand is elastic because of the availability of substitute service or a willingness to go without rather than pay high prices, a utility management must recognize changing conditions and adjust its prices accordingly. This would be true of industrial electric light and power service and certain classes of commercial and domestic service. Considerable elasticity should be permitted by commissions as long as other classes of the service are not burdened thereby. (So far as this is not now the case, remedy can be had without discarding the rate-base.)

The situation is otherwise where the demand for the service is relatively stable and inelastic (i. e., domestic lighting service). Here we find the greatest need for protection since it involves the most necessitous kind of service and the fewest satisfactory sub-

⁴ Efficient and aggressive management policies benefiting the public are not barred by present regulatory methods. The management of the Hartford Electric Light Co. by Mr. Samuel Ferguson is a case in point. It is to be regretted that there are not more men of

this type in control of public utility companies. Regulatory commissions should give considerably more attention to this aspect of regulation than they have in the past. Active cooperation and some lawful incentive directed toward this end are eminently to be desired.

stitutes. To permit the utility to charge in proportion to the intensity of the demand would mean not only high rates in periods of prosperity but high rates in periods of depression as well, for surely, if a decrease in lighting rates would yield the utility larger net revenue, there is nothing in present regulatory procedure to prevent that desirable result, and that is the only condition under which utilities would *voluntarily* do it in any case.

Nor could such reductions be imposed in times of depression against the will of the utility, no matter how high were the rates charged in the preceding period of prosperity.⁵ If they were below a confiscatory level for any year, they would be no less so, in the eyes of the law, because the utility happened to have a large return in other years.

Another suggestion is that some rate-base should be used, but that cost of reproduction should be substituted for prudent investment as a measure of "fair value." By adjusting rates to the changed level of prices of materials and labor, they would automatically be reduced in periods of depression and increased in periods of prosperity. Two objections to this method of accomplishing the result may be cited. The first, and least important, is that the change in the cost of labor and materials making up utility properties may not coincide more than very roughly with changed business conditions, volume of employment, and other prices, which are much more accurate measures of the ability and willingness of consumers to pay for the service. The second objection, of far greater importance, is that reproduction cost leads to continued and costly litigation because of the highly conjectural na-

ture of the value components. This would do much to defeat effective regulation. Moreover, as has so frequently been pointed out, it enhances the possibility of loss to investors and adds to the speculative character of public utility securities.

The third suggestion is the one alluded to by the Michigan Commission. It provides for a plan by which a varying level of rates can be brought about by use of the accepted standards with slight modifications. A fixed rate-base (preferably prudent investment) could be used and a variable rate level could be achieved through a variable rate of return, as long as the average rate, over a period of years, is compensatory.

"There has been some considerable discussion in the books with regard to the principle involved in the theory these interveners have advanced. The contention has been made with a great deal of seriousness that the company's earnings should be fair on the average and that all excess amounts over a fair return should be set aside as a reserve for use in times when the return should be less than fair. It has been argued that if during certain periods a utility makes less than a fair rate of return but that during other periods it makes more than a fair rate of return they have no legitimate ground for complaint if on the average they are permitted to earn an adequate rate of return. This is the basic reasoning and thought back of the contentions made by the interveners. The authorities are agreed, however, that this is not the law."⁶

The idea is not new, but it has usually been dismissed as of doubtful legal standing. "Apparently the fairness of the return is to be adjudged for each year separately. Earnings realized under rates established by commissions presumably become the property of the company, and past losses may not as a matter of constitutional right be made

⁵ Except where rate reductions are less costly to the utility than prolonged litigation.

⁶ 12 *Public Utilities Fortnightly* 203 (November 9, 1933).

up by high rates in the future." The United States Supreme Court in the New York Telephone case held that:

"The just compensation safeguard to the utility by the Fourteenth Amendment is a reasonable return on the value of the property used at the time that it is being used for the public service. And rates not sufficient to yield that return are confiscatory." (p. 31)

and further

"Past losses cannot be used to enhance the value of the property or to support a claim that rates for the future are confiscatory. (Citations) And the law does not require the company to give up for the benefit of future subscribers any part of its accumulations from past operations. Profits of the past cannot be used to sustain confiscatory rates for the future."⁸

Does this decision shut the door to rate flexibility under the prudent investment rate-base? One cannot be certain, but at least the possibility that it does not bar this desirable change should be investigated.

A Proposal

It must be remembered that, where the court has dealt with this problem in the past, there had been no attempt to deal with excesses and deficits in the rate of return in any orderly or logical fashion. The commissions were given the power to fix rates. If these rates yielded excessive returns, they were generally permitted to become the undisputed property of the utility. As such they could not be taken through denial of a fair return in later years, even though the return was adequate, on the average, over a period of years.

The difficulty may lie not in the constitutionality of the procedure, but in

the failure of state legislatures to prescribe a method by which excess earnings, as the result of high rates, would not become the undisputed property of the utility. Where a somewhat similar plan was tried by the Federal Government with respect to railroads its legality was sustained. In upholding the constitutionality of the recently repealed recapture clause of the Transportation Act of 1920 the United States Supreme Court said:

"The carrier owning and operating a railroad, however strong financially, however economical in its facilities, or favorably situated as to traffic, is not entitled, as of constitutional right, to more than a fair net operating income upon the value of its properties which are being devoted to transportation. By investment in a business dedicated to the public service the owner must recognize that, as compared with investment in private business, he cannot expect either high or speculative dividends, but that his obligation limits him to only fair or reasonable profit." (p. 481) . . .

"We have been greatly pressed with the argument that the cutting down of income actually received by the carrier for its service to a so-called fair return is a plain appropriation of its property without any compensation; that the income it receives for the use of its property is as much protected by the 5th Amendment as the property itself. The statute declares the carrier to be only a trustee for the excess over a fair return received by it. Though in its possession, the excess never becomes its property, and it accepts custody of the product of all the rates with this understanding. It is clear, therefore, that the carrier never has such a title to the excess as to render the recapture of it by the government a taking without due process." (p. 484)⁹

Why would it not be possible for states to place in operation a plan in which part or all excess earnings in

⁸ Jones, Eliot and Bigham, T. C., *Principles of Public Utilities* (New York: Macmillan Co., 1931), p. 262.

⁹ *Public Utility Commission v. New York Telephone Company*, 271 U. S. 23 at 31, 32 (1926).

¹⁰ *Dayton-Goose Creek Railway Company v. United States*, 263 U. S. 474 (1924).

years of prosperity would be turned over to the state to be kept as a special fund for use in making up future deficiencies to the company which paid it in (thereby differing from recapture under the Transportation Act of 1920)? This would not only permit some flexibility of rates, but would as well strengthen the investment position of the companies' securities, the fund being in the nature of a compulsory reserve. However, it should not be considered to be a state guaranty of interest or dividends.

The difficulties of administration of such a plan might be numerous, but, if this point of view is correct, they are not insuperable, providing the courts are willing to accept some reasonably stable rate-base. It might become somewhat complicated if both the rate of return and rate-base varied greatly with changed economic conditions.

One of the greatest difficulties would be to determine when to reduce and when to increase rates. Would not the company fight for higher rates in periods of prosperity and depression alike? Would not the public ask that rates be reduced rather than increased in times of prosperity? Perhaps. It may be that the utilities (in view of recent developments) will show some willingness to cooperate in a plan for preserving private ownership and operation on a reasonable basis. It is likely that self-appointed "defenders of the public" will get less response from that public to "reduce rates no matter what the cost" in periods of prosperity if such a plan were operative. A program of education would be helpful, and probably necessary to its success.

It would seem that the more automatic the reductions and increases in rates to be charged, the better. That would rule out the ever-present political

menace. An index based on such measures as the volume of industrial production, volume of employment, pay rolls, the general level of prices, and others might be used. The exact changes in rates to accompany certain changes in the combined index would have to be worked out. Finally, it would be necessary to put such a plan into operation in a period of revival or prosperity rather than in a period of depression. Reductions cannot originally be forced upon the companies during a period when income is likely to be at a minimum, but the plan would permit rate reductions in the period of depression following the accumulation of the reserve. Confiscation could not be claimed by the company. What they fail to earn through operations will be made up by drawing on the reserve. In a sense, it may well be thought of as an arrangement by which a company assures a steady rather than a variable return to its security holders over a period of years, irrespective of rate changes. That is to be desired, and it seems that neither the ratepayer nor the investor can have a just grievance.

Objections Considered

Numerous objections to the proposal here presented may be raised. A few of them will be briefly considered.

It might be argued that such plans for stabilizing profits simply will not work. The failure of the recapture provisions of the Transportation Act may be cited as an example. The answer to that argument is that the recapture provisions were designed to solve another and quite different problem, although the legal questions are similar. That clause was passed to permit *competing* rail carriers to charge the same rates for service and yet not permit "strong" roads to keep all excess profits resulting from a level of rates

high enough to keep the "weak" competing roads in business. Earnings above $5\frac{1}{2}\%$ (later 6%) were to be divided each year into two equal parts, one being surrendered to the government, the other being retained by the railroad company and used for certain specified purposes. The defects of this plan were in the main two: (1) the plan worked in an anomalous way. In some years many of the "weak" roads had considerable excess earnings, while some of the "strong" roads had none. Here was a situation in which railroads that needed all the funds they could accumulate to keep going had to make large payments into the federal treasury. *Once paid in they were lost to the road forever.* They could not be used later to fortify the credit of the same road as the plan above prescribes for utilities.

The recapture provisions led to long drawn out litigation over valuation that imposed a serious burden upon the Interstate Commerce Commission which was sorely pressed with more important matters. The Commission found most of its recapture orders carried to the courts and kept there indefinitely. Would not the same prove true of the above plan as applied to utilities? Here a definite answer is difficult to make. Because a utility is building up a fund to protect *its own* security holders rather than paying what virtually amounts to a 50% tax on excess earnings, there should not be the same incentive to prolonged litigation. Moreover, the railroad recapture provision was the result of the Commission's inability to reduce rates charged by the strong road because of the fear of crippling its weak competitor. In a public utility direct competition of like producers is infrequent and consequently *higher rates are the result solely of the sufferance of the commission to bring about this single*

result. If the utility objects, it will immediately be deprived of the privilege of charging higher rates in good times. Finally, it is to be hoped that enlightened private management will become more interested in working out a regulatory program that is fair to all, in good times and bad, than in squeezing the last legal dollar out of the public. A continuation of the purely selfish attitude is likely to be answered by an increased threat of public ownership and operation—a threat which has already made capital timid about entering this field. Private ownership and operation are on trial as they never have been before and a cooperative spirit should be dictated by self-interest.

Another criticism of the plan might be that a relatively fixed return over a period of years would act as a damper on private initiative and so bar progress. The same criticism would, of course, apply to the prudent investment rate-base with a fixed rate of return. The answer is the same in both cases. If an incentive toward efficiency is desirable, it can be provided by a more liberal average rate of return, or by increased remuneration to those individuals responsible for increased efficiency. This could possibly be brought about through use of the "sliding-scale" in which efficiency resulting in decreased rates to consumers is rewarded through a higher rate of return on the rate-base, or by some other method. The only difference is that under the above plan the necessary adjustment would have to be made in the average rate of return instead of that for any particular year.

The constitutional question was considered above. It is the opinion of the writer that the Dayton-Goose Creek case is authority for the belief that, if the state definitely takes the excess in prosperous years and disburses it to

the utility in years of depression, the companies cannot claim confiscation.

Still another criticism relates to possible political results. Suppose that the reserve fund grows large in good years; what is to prevent politically minded governors and legislators from demanding rate reductions or even the capture of reserve funds for use in the general state or local budgets?¹⁰ This is admittedly a vexing problem, and it seems that protection against such action would be that in times of prosperity, when the fund is large, the political pressure for rate reductions is not likely to be excessive, while in periods of depression the automatic reductions in rates will relieve political pressure. Furthermore, the reserve funds will be in the process of distribution to the utilities, and the public must learn that the fund is for the specific purpose of permitting rates to be lowered in times of depression and, if it is not so used, rates cannot be decreased at such a time. Legislation should be drafted so as to make it extremely difficult if not impossible, for the reserve funds to be used for general state or local expenditures, and the legislators and the public as well as the utilities must be made to understand that the plan is for the benefit of all and must not become a "political football."

How large should the reserve fund be,

¹⁰ It has been suggested that this might be prevented by setting up a trustee to administer the reserve fund for the company, thus preventing the state from acquiring title to the fund. While such a plan would prevent the state from using the fund for purposes other than that for which it is established, it raises the important legal question which state custody of the fund avoids—namely, that of ownership of the fund. If the utility has a legal or equitable claim to the fund, it may prevent its use to make up deficiencies in time of depression, under present court rulings, and so defeat the very purpose of the plan. A private trusteeship would appear to be possible only when the utility, through contract with the state or municipality,

and what shall be done if it becomes excessive? The size of the fund must be determined on the basis of what can reasonably be collected in good times and by what is reasonably necessary to make up deficiencies in hard times. This can be calculated in fairly accurate terms for each utility in light of past experience, taking into consideration all factors affecting income and expense, and modified by some consideration of ever changing conditions. If insufficient reserves are accumulated, rates cannot be reduced as far as would otherwise be possible; if the reserves are liberal, greater reductions are possible. Both clearly excessive and clearly inadequate accumulations should be guarded against, and a balancing of the interests of ratepayers in periods of prosperity and those in periods of depression should be carefully worked out. Excessive reserves should be used in such a way as to benefit consumers, either through rate reductions or by way of patronage dividends to those who have contributed toward building up the reserves through rate payments. It is conceivable that part of the excess might be used as a reward to utility corporations or their managements for improving or widening the service or for efficient operation.

Finally, the greatest seeming defect in the plan is that it assumes that the prudent investment basis can be used.

agrees to meet deficiencies, in times of depression, from the fund. This assumes a willingness on the part of utilities to enter into such contracts and causes the plan to be based upon their volition, which may be a somewhat uncertain quantity.

The entire plan might be worked out through contract rather than by mandatory legislation and commission supervision. The weakness of the contract method is the difficulty in obtaining the consent of utilities to sections of the plan with which they might not agree. They would be reluctant to surrender their legal safeguards unless they received liberal treatment. Furthermore, contracts might introduce rigidity where flexibility to meet changing conditions is desirable.

The writer is, of course, fully aware that the federal courts seem unalterably opposed to that measure of "fair value" alone. On the other hand, the courts have not declared that reproduction cost alone is the measure of fair value. Its decisions seem to imply that for the time being both factors (as well as others) will be used in fixing the rate-base. In so far as prudent investment is used, the plan could be employed. Even for that part of the rate-base which is made up of reproduction cost, it would be possible to use a variable rate of return, although the need for it would seem less apparent, if rates were promptly brought into line with changed reproduction cost.

In conclusion it must be recognized

that the plan is not suggested as a cure-all for public utility regulation ills. It attempts to deal with only one phase of that diverse and complicated problem. It leaves untouched the probably greater problems of prompt and effective decisions, proper selection and training of commissioners, expensive and destructive litigation, determination of a correct rate-base, rate structures, the problem of retiring bonded indebtedness of utilities during their active economic life, and other problems no less significant. It is hoped, however, that the proposal may receive consideration as a method of dealing with one vital phase of regulation, and possibly help rather than hinder the solution of others.

Land Values and City Growth

By HERBERT S. SWAN

NOT all wildcat speculation in land values has been confined to the edges of cities. Subdivision has afforded an outlet to but one type of speculation, that in vacant land. There is also speculation in improved lands. Large in amount as the annual speculation in vacant land is, that in improved land is usually far greater in value. But the technique of this speculation is a little different from that in new lots.

Although the game here too contemplates "rushing" the unearned increment by anticipating requirements of the community many years in advance, it is played a little more subtly. Since the stakes are bigger, it presumably involves exploitation of a somewhat more intelligent group in the social scale than does the comparatively cheap suburban lot. But the method, except for certain refinements, is essentially the same; in both cases success of the speculator is contingent upon an extreme aggrandizement of his own property at the expense of the community.

The too high building, the building occupying the entire lot, the large multi-family house, the crowded tenement and, in unzoned cities, the out-of-place store, filling station, or apartment in the high grade residence district are all too familiar tools of this exploitation.

That congestion of population, land overcrowding, dark rooms, and blighted districts stood in the offing as the social harvest of this highly specialized trade did not deter it; it was too profitable for the moment as one lot was made to earn as much as four or five, then as much as ten or twelve, and finally as much as fifteen or twenty lots had

earned before. Overdevelopment paid and paid handsomely, so long as the speculator did not overstay his market. Quick profits; a new development; another quick sale; repeat—this was the standard formula for the most profitable practice. When entire districts stood in a fair way of being completely ruined, apologists for the order assuaged the few inarticulate protests that were raised by adducing, if you please, the high land values—the very product of their own speculation—as a justification, indeed, as the necessity, the very inevitableness of their practice.

Blighted Districts

The excessive subdivision of, and speculation in, suburban lands has had an unforeseen effect, approaching disaster, upon the older sections in many cities. As a result of an artificially accelerated rate of centrifugal growth (a much faster rate of suburban expansion than warranted by increases in population), well established neighborhoods in the central parts of different cities have lost a considerable part of their population. The population of the suburbs has, in other words, gone on hand in hand with a depopulation of the city's center. In some communities this disintegration of the central parts of the city has progressed so far that it constitutes both an economic and a social disaster of the first magnitude.

The economic paralysis overtaking the blighted district is most frequently the direct result of misdirected effort in developing a city. Instead of modernizing old buildings and keeping them in a state of excellent repair, and when too obsolete for this treatment, supplanting

them with well-designed buildings comparing with the character and needs of the district, builders have neglected the central districts in favor of the suburbs, thus allowing conditions in the heart of the city to become progressively worse. That the best elements of the population should as a consequence desert these districts is not at all surprising. The results of this neglect are quite sobering — falling values, wiped out equities, foreclosed mortgages, decadent neighborhoods with a steady deterioration in both their physical and moral atmospheres. Many of these districts are today quite unable to bear their appropriate share of civic responsibilities. Unless restored to their proper character they threaten to become parasitic localities, a burden not only to themselves but to the city at large.

Excessive speculation in land values almost invariably leads to unsound methods of financing real estate. The large profits hoped for induce many persons to buy property on a mere shoe string. The speculative motive has also led to construction being financed almost entirely through borrowed money. In normal times, for instance, it is said that borrowed money finances 90% of the value of all building done in New York. That such a huge indebtedness affords a very tenuous ownership of real estate with many vicissitudes even in normal times goes without saying, but in critical times it is enough to plunge a considerable part of the community into economic chaos and disintegration.

Territorial Extent of a City and Land Values

Unit land values naturally tend to rise with increased density of population. But what of the aggregate land values in a community with a definite

population? Do they tend to increase with more intensive use? Suppose the population of any given city inhabited and used but one half as large an area as now utilized. Would the total land values of the city be more or less than they now are?

Any diminution in the developed area of a city involves a smaller cost of development. First of all, there would be the saving effected in the value of raw land. Then, too, the linear length of streets, sewers, water mains, curbs, sidewalks, and pavement all would be less. The economies of this character would probably, to a degree at least, be reflected in somewhat lower land values. In individual instances, however, such savings would no doubt help to swell the amount of the unearned increment.

The total increment in the site values of a community is generally, perhaps, less dependent upon the exact land area occupied by its population than upon the aggregate earning power of its population. Two communities with like purchasing powers of their populations conservatively estimated over a period of years will, it is believed, (although there is no statistical proof of the fact, so far as the writer knows) have approximately the same land values regardless of a very substantial difference in respective areas.

When the inhabitants of an urban area occupy a greater amount of land than would normally be determined by an optimum density for that particular community, the increased area, though costing more to develop than a smaller area which is more appropriate in size for the peculiar needs of the population, would nevertheless, because of carrying and maintenance charges disproportionate to the earning power of the people, be actually worth less.

Would anybody familiar with Sioux City, for instance, maintain that its far-flung, sprawling development has increased its land values? The direct opposite is undoubtedly true. If this city occupied but a fraction of its present area, the tremendous saving effected in serving the community in a hundred different ways would leave a much larger net rental to be capitalized in higher land values.

Contrast the development of Sioux City with that of Danbury, Connecticut. One sparsely built, with tenacles reaching miles out into the country, shattered into numerous interdependent neighborhoods; the other, closely knit, almost solidly built from center to rim, one community, yet every family housed on a satisfactory unit of ground. The land values in Danbury, it is true, are not high; yet they are as high as they are in large part because the built-up portion of the community contains so little unused land.

A reasonably compact development, such as is found in Danbury, usually abets rather than diminishes the earning power of a community. Closer settlement eliminates waste movements and requires a smaller capital outlay for the numerous utilities necessary to serve the population. Anything that enhances and stabilizes the net purchasing power of a community also usually tends to augment its site values.

Size of Building Unit and Land Values

Some cities have lost sight of the fact that a compact, well integrated community with high housing standards is something entirely different from one where compactness is achieved through the virtual abandonment of decent living standards by concentrating the population in crowded tenements. It is highly

questionable whether such land overcrowding as has been practiced, say, in Passaic, New Jersey, and Holyoke, Massachusetts, through an undue multi-family house development has not actually depressed land values.

A phase of this question which should not be overlooked is that the number of productive parcels and, as a consequence, the number of owners enjoying a return on their holdings, varies inversely with the size of the building unit. Large buildings, because of their greater cost, are almost always less marketable than small buildings. Being less salable, it is safe to say that they are also, proportionate to their cost, worth less. Even in New York City there are but few potential buyers for a hundred-family apartment. In a city like Parkersburg, West Virginia, such a building, even though possibly a profitable investment to the owners, would be absolutely unsalable.

The highest land values are likely to be realized in a community when the unit of development, each in its own class, most nearly approximates the largest potential demand from prospective buyers. Building units may easily be made so large that very few individuals either can or will purchase them. The lending institutions in some of our large cities have discovered this during the present depression, not only to their sorrow but to their self-extinction. During the boom days some of these institutions, to keep down their overhead, encouraged through large loans the construction of big apartment buildings. Indeed, it is a question whether certain lending institutions in order to dispose of their funds, and to have mortgage certificates to merchandise, did not even take the initiative in urging builders to erect exceptionally large buildings. But that was back in

the halcyon days before the crash of 1929. Since then the large building has not been quite so popular with the lending institutions.

In New York and vicinity, at least, the large building, as compared to the small building, has been involved in a disproportionate number of foreclosures. But the small building when sold has, because of the larger effective demand for that type of structure, not only satisfied the amount of the lien, but has also very often netted the lending company a profit. Not so with the large building. The tremendous losses sustained in the foreclosure and sale of large buildings have threatened and are even still threatening the very existence of some of the oldest and proudest financial institutions. Those that have been most active in financing the tall apartment have suffered the greatest grief.

The unsettling effect of the large building upon values is by no means confined to times of panic. Whether times are good or bad, the unduly large building produces an erotic condition in the real estate market. Nor is it confined to the residence building. The enormous office building has the same general effect upon realty values in the business district as the super apartment has in the residence district. The Dupont Building in Wilmington, Delaware, a gargantuan office building, containing not only a hotel but a theater, quite dwarfs every other building in that City. Two or three buildings, or at most half a dozen like it, would probably take care of the commercial requirements of most industrial cities with a population of not more than 100,000. Yet what medium sized city would not, in lieu of half a dozen giant buildings, prefer such a downtown development with buildings of moderate

height as are found in Waterbury, Connecticut, Troy, New York, or Paterson, New Jersey?

But even in cities like New York and Chicago the mammoth building tends to monopolize the market for tenants to the prejudice, if not the extinction of the average, everyday building. Take, for example, the Empire State Building. This tower with its 102 stories soars to a height of 1,250 feet above street level and contains 2,158,000 square feet of rentable floor area. This is equal to 49½ acres of office area! Or take the new R. C. A. Building in Rockefeller Center. This building, though only 853 feet or 72 stories high, contains 2,723,000 square feet of rentable floor space. This is equal to 62½ acres of office area! It need hardly be said that these office buildings are being filled with tenants only by syphoning them, as it were, out of other buildings. Each new tenant in one of these buildings means an untenanted and vacant office in some other building. Scores and scores of corporations, heretofore always located in the downtown district, have been induced to move their offices to either of these two buildings. The trend uptown of old established firms has been so marked as seriously to disturb the equilibrium of the financial district. Today the financial center is anchored to the Wall Street section on account of the presence of the Federal Reserve Bank and the Stock Exchange. Were these two institutions to move uptown, realty values below Chambers Street would soon be completely demoralized. Although such a move is at present not imminent, the district is nevertheless having, and for some time will continue to have, great difficulty in attempting to counteract the uptown migration of offices.

The Marshall Field Merchandise

Mart, with its 4,000,000 square feet or nearly 92 acres of rentable floor area, was filled up with manufacturers and wholesalers of wearing apparel and allied lines only by making the most serious inroads upon the stability of the old established wholesale district in Chicago. According to a recent study,¹ this building has a rentable floor space equal to 37% of the total floor space in 149 buildings in the 20 blocks of the so-called old wholesale district. In the spring of 1932 the Merchandise Mart housed 18¾% of the total number of units then in this line of wholesale trade in Chicago. No less than 375 tenants in the building had been coaxed away from other buildings within the city, and no less than 165 tenants from the 149 buildings in the old wholesale district. Some of these buildings had lost no tenants but others had lost as many as 20 tenants apiece to the Merchandise Mart.

Congestion and Land Values

The value of individual parcels may be increased through a capitalization of congestion as is evidenced in the slums of some of our large cities but it is more than doubtful whether the toleration of such conditions increases the aggregate land values in a community. Indeed, the direct contrary seems to be true, for undesirable housing conditions, by vitiating the health and vigor of the population, lead inevitably to the acceptance of generally lower standards of economic and social well-being. Anything that reduces the standard of living or impairs the earning power of the population also diminishes the amount of money that will in the aggregate be paid as rent. Hence, it must also reduce

the capitalized value of land. Although land overcrowding may augment the rent roll of individual owners, it practically always effects a reduction in the aggregate land values of a community.

Not so many years ago, when we had unrestricted immigration, slum properties in many cities were highly profitable investments. Little difficulty was experienced in keeping them pretty well tenanted at remunerative rents. But with restricted immigration a change occurred; owners of such buildings are experiencing a constantly increasing percentage of vacancies. Persons who upon their arrival in this country had to content themselves with such accommodations refuse with the attainment of a higher standard of living to reside in the slums as soon as they can afford something better. But now, with practically no new immigrants arriving to take these vacated tenements, many of the worst houses in different cities stood, until the depression intervened, in a fair way of being eliminated. It is hoped that this trend may be resumed with the return of improved business conditions.

Mortgage Loans and Land Values

The available supply of mortgage funds and the manner in which they are placed play a big part in the development of both the speculative and investment values of land. Too free an extension of credit—granting loans on properties of questionable investment value, making larger loans on properties than consistent with conservative investment principles, financing buildings long in advance of the requirements of the community and thus creating an oversupply of buildings—leads to a temporary inflation of realty values and in the end destroys sound investment values. When the inflation has proceeded so far that it is plain to every-

¹ See John E. Burton, "Building Obsolescence and the Assessor", 9 *Journal of Land & Public Utility Economics* 109-120 (May, 1933).

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body that all sight has been lost of real values, owners, in order to keep their tenants, begin to make competitive cuts in rentals which have, of course, the effect of greatly aggravating the evil. As a result of the deflation that ensues, all properties suffer a material depreciation in value; many equities are completely wiped out by the calling of or non-renewal of loans; forced sales depress values still more. When the movement has run its course, the increased growth of the community and the easy money resulting from the new wave of prosperity soon produce a new boom in real estate and a new cycle of inflation and overbuilding sets in until it, in its turn, suffers collapse.

A common fault with lending companies of all kinds, whether insurance companies, savings banks, guarantee mortgage companies, mortgage bond companies, or building and loan companies, has been their too liberal lending policies. Mortgage bond companies, though nominally making first mortgages, have frequently thrown all caution aside and instead of limiting the amount of loans to less than two-thirds of conservative values, have, in fact, loaned all the way up to, if not in excess of, the full cost of the property.² Participating mortgage certificates backed by such collateral were obviously not supported by a first mortgage in the usually accepted sense at all; in truth, they were no better than badly watered stock certificates masquerading in the form of mortgages. They were labelled "mortgage bonds" simply to increase their appeal to the conservative investment instincts of inexperienced and innocent purchasers. Lax laws have permitted highly speculative paper to be

sold under misleading names; and the lowered sales resistance which such paper has met under these labels has helped to fill the pockets of pseudo-mortgage companies.

Instances are also on record where building and loan associations extended to speculative builders building loans varying from 100 to 125% of the full cost of their jerry-built houses. Having financed his buildings in this manner, it was obviously an indifferent matter to the speculator whether or not the property was disposed of to a bona fide home buyer; he had already secured a generous profit on his transaction from the building loan itself.

Life insurance companies should by all odds be doubly cautious in their lending policies. Prudence should dictate to them not only a very conservative loan considered in proportion to the sound value of each property, but a loan in each case limited in absolute amount regardless of the estimated value of the property. They should, in other words, be expected to spread their risks even if the risks themselves were deemed conservative; they should refrain from having too many eggs in a single basket regardless of how good either the eggs or the basket might be. Yet what do we find? Today individual life insurance companies appear to have no limit whatever upon the amount of money they will lend upon a single project. Instances of two-, three-, and five-million-dollar loans are all too frequent; but what shall we say of the reputed first mortgage loans of twenty, thirty millions and more that have been laid to a certain company? Should any lending company at any time or in any place grant such a loan on any single

² For a discussion of this situation in Chicago see the interesting article by Carrie Maude Jones, "Apartment House Bonds: Some Plans for Reorganizing Defaulted

Issues," 9 *Journal of Land & Public Utility Economics* 358-367 (November, 1933) and completed in 10 *Ibid.* 67-77 (February, 1934).

piece of property? Such a loan, no matter where or how placed, may be honestly open to the charge of transgressing prudent investment principles, especially when made by a life insurance company.

Were it not for the credit facilities extended by lenders to mortgagors in the acquisition and improvement of their properties, a terrific loss would be suffered by the investment values of real estate. Nearly all kinds of real estate involve such large outlays that transfers simply cannot be effected on a cash basis. The same applies to the construction of buildings. But the fact that loans are essential to the sale and development of real estate does not carry with it the implication that either the entire burden, or a disproportionately large part of the burden, should be carried on borrowed money. If the lending institutions wish to go into the real estate business as landlords, then they should do it honestly as owners and not as pseudo-lenders when they are actually, in fact, owners.

Proper credit under present-day business conditions is such an essential prerequisite to a satisfactory use of urban land that it would be impossible to maintain the customary investment values in city real estate without it. That serious abuses should have crept into its extension in different cases is not at all surprising. Yet these abuses call for prompt remedy. It is hoped that lenders themselves will take proper steps to rectify conditions; if they do not, meddlesome legislation will probably soon find a new field for the exploitation of popular discontent.

Long-Term Mortgage Money

Every legitimate investment in real estate should properly be regarded as a long-term investment. Yet most of the

mortgage funds seeking investment are short-term money.

Could mortgages be made for a 10-, 15-, or 20-year term, instead of the usual three- or five-year term as at present, it would undoubtedly have a very stabilizing effect upon real estate values. Amortized in quarterly or semi-annual installments over their term, such mortgages could be made self-liquidating so that they would be entirely extinguished at maturity. This would save the owner the annoyance and worries of frequent renewals. It would also enable him to apply the sizable fees and commissions he now pays for extensions toward a reduction of the principal amount of the mortgage.

Where the average mortgage has but a three-year term, there is, of course, a complete turnover of all the mortgage funds in a community every three years. Of the many billions of dollars of debt secured by mortgages upon city real estate, an average of 2.78% of the total must be refinanced every month; an average of 33 $\frac{1}{3}$ % every year. Just suppose that the bonded debt of our cities had to be refinanced every three years! Or that of our railroads, our public utilities, our industrial corporations! It would no doubt be highly disturbing to the business quiet of the entire country. It is no less so in the case of real estate.

Even in normal times, local employment conditions are so spotty and uneven in different kinds of business and different sections of the country, that many home owners experience serious difficulty in renewing their mortgages. In times of prolonged business depression, the number of mortgages falling due over a period of several years is so large and the disinclination of mortgagees to renew loans so general that home owners face almost universal

bankruptcy and foreclosure. But what other result can one expect when mortgagees as a class, instead of extending loans, insist upon their cash?

It is not the object of this paper to recite the woes of mortgagors and the ruin that has overtaken them during the last four years. This calamity is still visited upon us. It is too well known to be rehearsed here. But what interests us now is how to avert a similar catastrophe after this depression is over—that is, when we have our next depression.

A 15-year term, say, for mortgages would spread the maturities that now occur in a year over five years. Over a period of three years, but one mortgage in five would fall due. Were mortgages properly amortized, then only comparatively small amounts would have to be refinanced each year as they fell due. The total sum extended in any one year, or even over a period of three or four years, would be so small that even the longer depressions could be bridged without a general refinancing of all real estate in a community. With mortgages made in the original instance at a conservative percentage of honest values and periodically amortized with a view to being wholly repaid by maturity, a solidity would be given the real estate structure in a community, which, in enabling it to weather almost any financial storm, would also make it fit for the investment of the life savings of home builders, the deposits of savings banks, and the premiums of life insurance companies.

Building and loan associations have, of course, always engaged in long-term financing, but let us not forget that even where building loans have been most generally used, they have covered only a part of the building field and that

numerous cities throughout the country have no building loan associations at all.

Traffic Accessibility and Business Values

There is no doubt of the fact that business and traffic interact most intimately upon each other. Business unquestionably tends to follow traffic, but at the same time we should not forget that traffic is directed to and from the business centers. Sometimes the interrelationship between traffic and business is so inextricably intertwined that it is difficult to distinguish which is cause and which is effect.

Radial streets emphasize a central development of the main shopping district. The area within which they focus is in a peculiar sense the clearing and interchange center of local traffic. As a result, it usually enjoys an early ascendancy in business development, which later changes in the distribution of traffic do little to disturb.

The gridiron plan, on the other hand, accentuates axial growth of the main retail and financial center. Business will tend in the first instance to locate and, as it grows, to extend along the main traffic highways.

A broken and disconnected street plan encourages scattered business development. Access to any one center from all parts of the community being difficult, the business district is decentralized and broken up into small units. Instead of one big business district, there are several single districts scattered throughout the community, located at the different neighborhood centers.

In most cities the business district had its origin at the principal cross-roads—in other words, the most accessible traffic point in the community. As population grew, the business area developed about the initial stores. If

the community contained a considerable number of wealthy residents, the shopping district tended, other things being equal, to veer toward the locality inhabited by them. Putting the problem in another way, the retail section tended to grow in the direction that was most accessible to the greatest purchasing power.

In pre-automobile days, the street leading to the railroad station was, because of the central position it occupied in most commuting communities, the leading business street. Since the introduction of the automobile, however, the station street does not enjoy the greatest popularity for business purposes. The automobile has not only everywhere changed the entire mode of travel; it has also in many places entirely changed the direction of travel. Where this has occurred, the newer businesses locating in the community have unmistakably shown their preference for the new traffic routes.

The old business centers naturally exhibit a considerable inertia in maintaining their ascendancy in the commercial life of the community, but a new, vital force has nevertheless appeared to challenge them. That it is making real inroads into the supremacy heretofore enjoyed by the old business centers is evidenced by the new business districts that have within the past few years sprung up on the principal traffic streets in such cities as Patchogue, Long Island and Greenwich, Connecticut.

As the old centers lose in their accessibility to all people in the community, new accretions to business in the way of shops, theaters, and offices tend more and more to gravitate toward the new traffic centers. This rivalry between new and old traffic centers is not confined today to different streets within

the same community; it extends even to the business centers in widely separated districts. The fact that New York department stores which never had a branch store have within the past few years located branches in East Orange, Garden City, Mamaroneck, and Greenwich, while Chicago department stores have during the same time located branches in Evanston and Oak Park, shows that for certain types of businesses, at least, the competition for equal traffic accessibility extends over a very considerable area.

Pattern of Business District

A business area approximating a square in shape, other things being equal, is usually far more efficient than a shoe-string district. Why, then, do we so often find a disintegrated business district? Why does a shoe string commonly describe the shape of the retail center in even comparatively large cities? The explanation is, as a rule, probably found in the very unequal traffic values of different streets in the downtown section of the average city.

Cities as different as Chicago, St. Louis, Seattle, and San Diego, but alike in having regular street plans with fairly uniform traffic values for different streets in the downtown section, have developed large commercial centers. In cities like Newark and Bridgeport, on the other hand, where the downtown streets are of very unequal traffic value, the shoe-string kind of business district persists.

But even if a city possesses a regular street and block plan, an excessively long block may force a shoe-string development upon its business growth. This fact has been evidenced in New York where a block length of 920 feet between Fifth and Eighth avenues has even on many downtown streets, despite

the overwhelming size of the metropolis, been sufficient to keep business from absorbing the interior of the block. East of Fifth Avenue, where the block length is only 420 feet, business has, however, appropriated the entire block.

A business section is gradually developed through the accretion of new businesses. Each new business in choosing a site tends to seek out a location possessing superior accessibility. If more regularity as to width and plan characterized downtown streets, so that they possessed approximately equal traffic values, the result would undoubtedly be the development of more compact business areas, instead of the present sprawling districts.

The development of the downtown business districts on one or two streets has proceeded so far in such cities as Newark, N. J., Charlotte, N. C., Danbury, Conn., Norwalk, Conn., Hackensack, N. J., and Stamford, Conn., that the business district is beginning to have a rather ungainly length. It is so spread out that a very long walk must be taken in order to do business at the two extreme ends of the district.

For a business district to continue growing out along a single street, instead of developing a compact area in the center of the city, makes the downtown business district more and more unsatisfactory to do business in as the population grows. A central business district, assuming that it is served with appropriate streets, gains in efficiency as it becomes more and more compact. A square business district is more efficient than an oblong one and an oblong district more efficient than a long shoe-string type of district.

The development of a downtown business district normally, of course, follows the lines of least resistance in its growth. It is only natural that this

development should recognize the shortcomings of the downtown street plan. By selecting the wide streets, but not the "too wide" streets, it avoids the insufferable congestion that would ultimately throttle it on the too narrow streets. Expansion along the wide streets may mean an ungainly shape, but it is the lesser of two evils. But this tendency can go only so far. If the narrow downtown streets in its path are not widened, the next stage in business growth may lie, as has occurred in Harrisburg, Penn., in the development of entirely new localities for business purposes.

Street Widths and Business Development

Whatever the shape of a business district may be, its growth is, as a rule, most loathe to favor narrow, disjointed streets having inferior means of access. Development will almost invariably follow the streets of satisfactory width and organically related to the integral plan of the community, even though this may sometimes mean striking off in entirely new directions. Thus, in New Brunswick, N. J., the business district on George Street has rounded the corner into Livingston Avenue; a similar condition has developed in White Plains, N. Y., where business has branched off of Main Street into Mamaroneck Avenue. In Stamford, Conn., the retail district has studiously avoided the narrow streets on either side of Atlantic Street and, after spreading both east and west on Main Street, is now penetrating northward into Prospect Street. Although this means a far-flung district necessitating long walks, business nevertheless elects to ferret out the streets of satisfactory width and access rather than suffocate on bottled-up streets.

Where there is but one thoroughfare of satisfactory width through the heart of a community, it is very likely to become not only the main traffic artery, but the main business street with the highest land values in the city. Witness, for example, Broad Street, Newark, N. J., and Main Street, Hartford, Conn. Where such a street is flanked on either side by short, disconnected, and exceedingly narrow streets, the business growth on it will generally assume the shape of a shoe string, rather than a compact business district, by overflowing into the side streets. It is nothing short of remarkable how business will choose to suffer all the inconveniences and discomforts of an ungainly length, in order to avoid nearby streets difficult of access.

Nothing helps to stabilize a business locality more permanently than satisfactory streets. Where streets are of insufficient width to serve abutting properties, one may almost always expect, in the future, a blighted district. The normal urban development which might otherwise be expected is likely to pass entirely over such localities and jump to neighborhoods which, although outside the logical direction of growth are, on the other hand, served with more satisfactory streets. These tendencies are all too evident in any city with a considerable number of streets of insufficient width. Whether it be Albany, Harrisburg, Paterson, Charlotte, Stamford, New Haven, Bridgeport or Hartford, nearly all the banking, shopping, hotel or amusement business is today located on the wider streets; neighboring narrow streets have been all but forgotten by the larger business developments.

In other words, these narrow streets, although within practically a stone's throw of the main business streets, are

playing an entirely secondary role in the business activities of their respective cities. Were their street widths ample to care for the vehicular and pedestrian traffic which they would be called upon to serve with a more intensive development, who would say that the downtown business section of such cities with its high land values would not be spread out and diffused more than is now the case? In that case, we could reasonably expect a downtown business district, instead of merely one or two downtown business streets.

Zoning and Land Values

Very high site values, like those found in different parts of the downtown business districts of Chicago, New York, Philadelphia, Pittsburgh, and San Francisco, are generally not to be expected unless the area within the business center is highly differentiated for specific purposes. Such a differentiation into the financial district, shopping district, hotel district, etc., can occur only within very large commercial cities. In New York this refinement has been carried to an extreme degree; there nearly every commercial interest has its own center.

Any minute classification of the downtown center along these lines is all but lacking in the average city. Hotels, banks, office buildings, department stores, shops, theaters—all stand side by side and occupy the same kind of land in the smaller communities—whether these cities are no larger than Hartford; Albany; Jacksonville, Florida; Trenton; Bridgeport; Charlotte, North Carolina; Charleston, South Carolina; or attain a size as large as that of Buffalo; Dallas; Seattle; Syracuse; Denver; Fort Worth; Rochester; or Portland, Oregon. The value of land in the business districts of such cities, being

put to a less selective use, can, of course, not rise quite so high. Yet in special locations, such as the Four Corners in Newark and the Boardwalk in Atlantic City, individual parcels may frequently command as high unit values as even some of the most expensive land in the largest metropolitan communities.

A high tax on land undoubtedly stimulates its earliest practicable use. Sometimes it may do more than this; in the absence of effective zoning regulations to keep this stimulus within proper bounds, high taxes may even produce a too intensive use of land in the nature of excessively high buildings, buildings occupying a disproportionate part of the lot, buildings equipped with utterly inadequate courts and yards, and multi-family houses accommodating too many families upon the lot. These evil tendencies are all accentuated by high taxes, but they would probably occur now and then even if land were absolutely exempt from taxation. With high taxes on land, there is, however, all the more necessity for really effective zoning regulations to hold these tendencies in check.

Where zoning establishes definite standards controlling property not only as to its use but as to the intensity of that use through sets of different height, area, and family-per-acre or density regulations, it must as a consequence also fix within a rather narrow range a more or less definite limit upon the maximum value of the land in different zones.

The land values in a community, in so far as they affect a particular tract, do not rise until they discount either a more intensive use or a higher use. In other words, land used for the purpose, say, of housing people of a given income, spending a given proportion of that income upon rent for certain accommodations, will not rise in value until it be-

comes available for housing either (1) people of a greater income; (2) people willing to pay a greater proportion of their income on rent; (3) a greater number of people paying in the aggregate a larger rent; or (4) for commercial purposes.

The first two of the above conditions practically never affect land—zoning or no zoning. People of any particular income group rarely ever move into a neighborhood occupied by persons of a lower income group. As people quite generally pay as much rent as they can afford, they are naturally exceedingly loath to share a still larger percentage of their incomes with the landlord. But should anybody choose to do either of the above things there is not a zoning ordinance in the land that will in any wise prevent him.

Zoning does, however, limit land both as to its use and as to the intensity of that use. In applying these regulations particular care must be paid to land values lest the regulations prevent land from being put to a use already discounted by its present value.

Once established, however, it is evident that the regulations in any particular zone tend to act, generally speaking, as a maximum limitation upon the amount of the accruing increment. The value of land restricted to residence use can obviously not discount a business occupancy. If there is every likelihood of the residence restriction being maintained indefinitely, the value of the land cannot very well rise above the normal net rental capitalized at the usual rate for the expected class of occupancy.

The same rule applies to the several classes of residence zones. The land in the middle class, one-family house zone can plainly not discount the values found in a six-story apartment-house

zone, if there is no probability of the land ever being placed in such a zone. Speculative and spectacular increases in land values under a properly drawn zoning plan can only occur, as a rule, in the residence zones on the fringe of the downtown district of a very rapidly growing city. In such cases the expectation is, of course, that the land that is now strictly zoned for one- or two-family dwellings may in time be opened up for a high class business development.

Cities have nearly everywhere been taught only too well that unregulated building means anarchy in their industrial and residential development. Unregulated building proves not only unprofitable; it involves the demoralization, if not the collapse, of real estate values. Real estate experts are unanimous that proper zoning stabilizes land values. Zoning, in assuring the different sections within a city of an orderly development, strengthens all land values.

Conclusions

Until the present year of grace, the growth of every American city has been more a matter of speculative enterprise with a view to exploiting the increment in land values than it has been a matter of scientific and rational planning. The great bulk of the credit that has gone into buildings has, moreover, been short-term credit as if real estate were a fairly liquid asset. The manner of financing the construction and ownership of homes has, instead of stabilizing market values, accentuated the speculative elements and made the ownership of real estate a highly hazardous investment.

To formulate the main features of a program for a problem with as many ramifications, and as controversial as the stabilization of investment values in

city real estate, is an audacious undertaking. Being somewhat appreciative of the many difficult questions involved in the problem, the writer, in all meekness and humility and with an open mind to them who may differ with him on the subject, suggests that the measures of most importance to the maintenance of sound and permanent investment values in city real estate would include the following:

1. The establishment through either governmental or commercial auspices of a rational, planned control over building development with a view to regulating the erection of new buildings of all kinds to the legitimate requirements fixed by the law of supply and demand, not as a result of speculative manipulation in any one center, but by the normal industrial and urban growth throughout the entire country.

2. Long-term mortgages, say mortgages running for a period of 15 to 20 years, and the regular periodical amortization of mortgages with a view to their complete liquidation by maturity.

3. A limitation upon the percent of mortgage loans to the appraised value in inverse ratio to the value of the property so that the owner will be obliged to assume an increased proportion of the investment risk according to the size of the building project.

4. A limitation by law upon the absolute amount that may be loaned on any particular parcel or building project by savings banks, insurance companies, estates, or trust funds restricted to legal investments.

5. A general limitation upon the size of the building unit, each in its own class, to what most nearly approximates the largest potential demand from buyers in each city; the erection of building units of such a size that they are, practically speaking, all but unmarket-

able being discouraged by both lending institutions and the building regulations of every city.

6. Cities should quite generally look to proper planning and development, and if necessary, even a rehabilitation of their central areas so that these may be, not blighted districts, but permanently satisfactory sections of the community.

7. The height and area regulations of every zoning ordinance should be made to rest, not as is so often the case, upon rule-of-thumb requirements, but in so far as possible upon a scientific understanding of the laws of light and air so that every room may be permanently a well-lighted and well-ventilated room even after the whole community is developed in accordance with the zoning regulations.

Carrying out a program like the above would undoubtedly have the effect of reducing the number of real estate owners in many cities. But real estate would also be held by stronger owners, by persons possessed of sufficient capital funds to justify their ownership. A big element of weakness to real estate values today is the large number of owners with mere shoe-string equities, in many cases, imaginary equities. An early elimination of these owners, cruel

as it might seem, would, however, in a great number of cases redound to their own profit. Facing ultimate elimination anyway, their early elimination would save them the pain of throwing good money after bad. But the cleaning up of a large number of distressed parcels for sale would also have a firming effect upon realty values. Because of the present small down-payment necessary to the purchase of a parcel, the real estate market often resembles the stock market when in an over-bought condition. Just as numerous small accounts, heavily margined, make the whole board vulnerable to short selling, so a number of forced sales hanging over the real estate market exercises a wilting influence upon property values.

Some of our discussion may have appeared disjointed as well as unrelated to the general subject of the paper—land values and city growth—and so it probably has been, but the whole matter narrows down to this: just as there are many factors affecting city growth, so too, there are numerous elements entering into the determination and maintenance of city land values. But by and large anything that affects the growth of a city influences its land values, and sooner or later the land values of a city will necessarily condition the character of its growth.

The Importance of Recreation as a Land Use in New England

By LAWRENCE W. CHIDESTER

HUNDREDS of acres of land formerly used for agriculture and timber are now used solely for recreation. This gradual substitution of one form of land use for another has been sufficiently emphasized in general terms by other writers. Detailed studies of its effects upon specific areas, however, are lacking, with the exception of surveys made in certain counties of Wisconsin and Massachusetts.¹ The purpose of this paper is to indicate the importance of the change in New England.

With the decline of agriculture and industry in some of the rural areas of New England and the consequent migration of labor and capital, many towns now rely almost entirely upon the summer visitor for their livelihood; others rely upon him to a lesser but yet substantial degree. From small beginnings in 1729, when West Indian and South Carolinian planters first visited Newport, Rhode Island, during the summer season,² the vacation industry in New England has grown until it now produces an income second only to the textile industry.

No studies have been made of the acreage now used for recreational purposes in New England as a whole. Con-

sequently, the importance of such land use must be shown by the number of public places catering to summer visitors, by property valuation and income data, and by histories of individual communities.

Number of Public Places Catering to Vacationists

An analysis was made in 1932 of the distribution of resort centers in northern New England (Maine, New Hampshire, Vermont).³ The survey was restricted to places advertised in various media but it includes about 800 communities and seems fairly representative. The accommodations covered include hotels, inns, boarding houses, private farm and village homes, camps, and wayside cabins to the number of about 3,300. In Vermont nearly 200 communities advertise lodgings in over 900 establishments; in New Hampshire more than 200 centers advertise lodgings in more than 1,000 establishments; and in Maine nearly 400 cities and towns advertise lodgings in over 1,400 establishments.

The investigator's interpretation of the data follows:

"Resort centers are significantly close to important scenic features—the ocean, lakes, and mountains.⁴ Starting with the coast an

¹ G. S. Wehrwein and K. H. Parsons, "Recreation as a Land Use," *Wisconsin Agricultural Experiment Station Bulletin*, No. 422, April, 1932. A summary of this material together with additional data appeared in "Development and Taxation of Private Recreational Land," 9 *Journal of Land & Public Utility Economics* 340 (November, 1933); David Rozman, "Forestry and Recreational Land Uses in Massachusetts," *Massachusetts Agricultural Experiment Station Bulletin*, No. 294 (January, 1933).

² Carl Bridenbaugh, "Colonial Newport as a Summer

Resort," 26 *Rhode Island Historical Society Collections* 2 (January, 1933); also, "A History of Tourism in New England to 1900," an unpublished paper by the present writer.

³ Verna B. Flanders, "The Recreational Industry of Northern New England," a master's thesis (geography) presented at the University of Chicago, 1932 (manuscript).

⁴ For the relative importance of these scenic features see L. W. Chidester, *New England's Recreational Appeals* (Boston: New England Council, 1930).

almost unbroken line of resorts extends from Hampton Beach in New Hampshire to Casco Bay in Maine. Concentration here indicates many advertisers in each community. In the case of Hampton Beach the number of establishments runs up to over forty; in Old Orchard, Maine, to nearly one hundred fifty. Eastward, past Mount Desert Island, there is a thinning out of resorts all along to Eastport. This southwest-northeast trending line is paralleled forty or fifty miles inland by a belt of lake resorts. Here an almost continuous southwest-northeast line appears with Lake Sunapee, Lake Winnepesaukee, Sebago-Long Lakes, and the Belgrade Lakes prominent. Another group defines the White Mountains area, both the eastern and western sides with blank wilderness between. A fourth district of more widely spaced resorts marks the Rangeley and Moosehead Lakes in Maine with straggling lines beyond them to the northeast, deep into the Maine woods. In Vermont the southwest-northeast trend of the Green Mountains is faintly suggested by several widely separated resorts, and lakes scattered over the State account for the presence of other recreational centers. There is not in this State, however, so marked a clustering of resorts in the vicinity of an outstanding relief feature as in Maine and New Hampshire."

In order to give due prominence to resort centers which have only a few establishments but large ones, the investigator analyzed communities affording accommodations for over 100 people. Maine and New Hampshire each show over 100 such centers and Vermont about 60. Outstanding large-scale resorts are accentuated by ignoring many places where numerous farm houses and inns accommodate a few vacationists.⁵

The study just presented covers only lodging places; it does not include restaurants or boys' and girls' camps.

⁵ Analysis of this intensive use showed a very similar, though more pronounced, geographic pattern than did the more inclusive group. (Flanders, *op. cit.*)

⁶ With the exception that boys' and girls' camps are capably analyzed each year in Porter Sargent's *Handbook of Summer Camps* (Boston).

Data for all New England are not available for these additional types of facilities.⁶ However, the number of all types of public places in Maine has been determined by the Maine Development Commission.⁷ These data are presented in Table I. The figures are given not only because they supply detailed information about a specific area of New England but also because they show the relative importance of the different types of places.

TABLE I. NUMBER OF PUBLIC PLACES IN MAINE OFFERING FACILITIES FOR VACATIONISTS, 1930

Summer hotels and tourist homes	1,588
Summer restaurants	1,210
Overnight camps	595
Sporting camps	284
Boys' and girls' camps	183
	3,860

Valuation of Recreational Property

A second measure of the importance of recreation as a land use is the value of property devoted to this purpose. Each of the six states in New England has classified recreational property into three divisions and has determined the value in toto and for each class. The first class, called "resident residential property," includes property owned by residents of other communities in the same state. The second class, called "non-resident residential property," includes property owned by non-residents of the state. The third class, "public and semi-public recreational property," covers hotels, golf courses, and the like. Table II brings together for the first time the results of the surveys made by the six states.⁸

Since these six surveys are the first

⁷ "A Survey of Maine's Recreational Industry," mimeographed report (Augusta, Maine, 1932).

⁸ Only one of the surveys has been published. See Massachusetts Industrial Commission, *Annual Report* (Boston, 1930), pp. 20-23. The others are on file at the offices of the New England Council, Boston.

TABLE II. ASSESSED VALUATION OF RECREATIONAL PROPERTY IN NEW ENGLAND, BY CLASSES AND BY STATES, 1930

State	Resident Residential Property	Non-Resident Residential Property	Public Recreational Property	Total
Massachusetts.....	\$115,218,711	\$ 38,209,726	\$ 35,930,743	\$189,359,180
New Hampshire.....	25,123,586	42,581,429	30,238,999	97,944,014
Rhode Island.....		62,320,041		62,320,041
Maine.....	8,412,370	35,144,720	10,558,276	54,115,366
Connecticut.....	23,391,010	23,190,488	5,027,971	51,609,469
Vermont.....		20,713,000	5,389,085	26,102,085
TOTAL.....	\$172,145,677	\$222,159,404	\$ 87,145,074	\$481,450,155

ever made of the assessed valuation of recreational property, it is impossible from such data to show the trend toward the recreational use of land. The present relative importance of this type of property, as a percentage of the total assessed valuation of all property, can be indicated, however, in four of the states. In Massachusetts and Connecticut, where manufacturing predominates, recreational property constitutes 3% and 2% respectively of the total; in New Hampshire and Vermont, where manufacturing is far less important, recreational property accounts for 16% and 11% respectively of the total.⁹

The following observations from the data in Table II emphasize conditions peculiar to each state:

1. The greater portion of Massachusetts recreational property is owned by Massachusetts people. Such a result is to be expected since wealthy Bostonians have costly estates along the North Shore, while middle-class Bostonians like Cape Cod.

2. Almost half of New Hampshire's recreational property is owned by non-residents. New Hampshire, like Maine and Vermont, is essentially rural, with few, large, wealthy centers of population. It must, therefore, draw its vacation business from outside the State.

3. Well over half of Maine's vacation property is owned by non-residents, and its public recreational property is more important than its property owned by citizens of Maine.

4. Most of Vermont's recreational property is owned by non-residents, and public property is small in amount. Vermont is becoming a State of small summer homes.

5. Rhode Island is dominated by Newport where the large elaborate estates are chiefly owned by non-residents.

6. Since Connecticut has large wealthy centers of population, its own residents possess slightly more recreational property than do non-residents. Public property is small since private summer cottages tend to dominate in Connecticut.

In addition to finding the amount of property used for recreational purposes, each state also discovered the amount of taxes paid on such property in 1930.¹⁰ The grand total for New England was \$12,752,441.48.

The use of land for recreation is even more important to many towns and cities in New England than it is to the region as a whole. In Massachusetts, for example, 22 towns out of a total of 355 have 50% or more of their total

⁹ From unpublished reports of the state tax commissioners on file at the New England Council, Boston.

¹⁰ No data are available on taxes levied or on tax delinquency of recreational property.

valuation in recreational property; two towns have 95% of their valuation in such property.¹¹ There are eight towns in Massachusetts each with summer property assessed at more than \$5,000,000 and 30 towns with such property assessed at from \$1,000,000 to \$5,000,000.

Annual Income from Vacationists

The third measure of the importance of recreation is the annual income derived from vacationists. The widely accepted sum for New England's receipts from this source is \$500,000,000 (in a normal pre-depression year). This figure was derived by taking as a base the American Automobile Association's estimate that 3,000,000 auto tourists visit New England yearly. This base sum was then multiplied by \$100, the per-person expenditure determined by the State of Maine Publicity Bureau from questionnaires, and certain adjustments were made for railroad, steamship, and bus tourists. Such a method of calculation is open to serious criticism, especially in view of the United States Department of Commerce's analysis of tourist expenditures.¹² The chief difficulty is with the \$100-per-person figure, since many other tourist bureaus and the Department of Commerce use sums much smaller than this and only a few use larger amounts.

In December, 1932, the Development Commission of the State of Maine completed a comprehensive survey of the recreational business in that State.¹³ This study indicates that vacationists spent \$85,684,741 in Maine in 1930. The New Hampshire Foundation, a

research bureau cooperating with its State Development Commission, has determined upon \$75,000,000 as New Hampshire's income from tourists.¹⁴ With each of these states reporting less than \$100,000,000 it seems improbable that the New England figure could approach \$500,000,000. Maine is conceded to rank either first or second as a tourist state in New England. Further, the vacation business in three of the six states, Vermont, Rhode Island, and Connecticut, is very small relative to that in Massachusetts, Maine, and New Hampshire. To attain the \$500,000,000 sum the tourist business in each of the six states would have to equal that in Maine, and no one will deny that this is far from the facts of the case. It is the writer's opinion, based upon the Maine and New Hampshire surveys and upon certain measures of the relative importance of the vacationist in the six states, that a liberal estimate of New England's income would be \$400,000,000.

This large sum is important not only because of its size but because of its wide diffusion into all parts of a community. The American Automobile Association's analysis of tourist expenditures into transportation (20%), accommodations (20%), retail stores (25%), food (21%), amusements (8%), and confections (6%) has been widely quoted, but the distribution as actually found in Maine, a typical resort state, seems more significant. This distribution, given in Table III,¹⁵ shows that hotels and sporting camps receive only 16% of the total expenditures, garages

¹¹ Massachusetts Industrial Commission, *op. cit.*, p. 20. "Town" here corresponds approximately to "township" rather than to an urban or village area.

¹² For a criticism of this method see L. W. Chidester, "How Precise is the Income Figure of the Tourist Industry?" *Sun-Up Magazine* (Portland, Maine), February, 1930. For the Department of Commerce's

analysis see the yearly issues of "The Balance of International Payments of the United States;" the 1930 issue is *Trade Information Bulletin*, No. 761.

¹³ *Op. cit.*

¹⁴ New Hampshire State Development Commission, *Biennial Report* (Concord, 1932).

¹⁵ Maine Development Commission, *op. cit.*

and filling stations only 9%, and overnight camps, rooms, and eating places only 7%. Thus the claim that these agents receive the lion's share of the vacation business is clearly refuted; in Maine they receive less than $\frac{1}{3}$ of the total.

TABLE III. INCOME FROM THE VACATIONIST IN MAINE, BY BUSINESS INTERESTS INVOLVED, 1930.

Business Interests	Amount	Percentage of Total
Summer hotels and sporting camps.....	\$13,898,865	16.2%
Miscellaneous (architects, barbers, brokers, blacksmiths, opticians, lawyers, caterers, etc.).....	12,000,000	14.0
Groceries.....	9,558,080	11.2
Garages and filling stations....	7,884,513	9.2
Boys' and girls' camps.....	4,162,518	4.9
Contractors and lumber.....	3,812,200	4.4
Boats and yachting.....	3,302,600	3.9
Dry goods.....	3,018,500	3.5
Tea rooms and eating places.....	2,932,805	3.4
Transportation.....	2,500,000	2.9
Taxes on recreational property.....	2,035,440	2.4
Drugs and confectionery.....	1,802,500	2.1
Gifts and antiques.....	1,797,536	2.0
Wages (caretakers, domestic help, help employed direct)	1,462,430	1.7
Hardware.....	1,397,100	1.6
Rent of cottages.....	1,342,900	1.5
Shoes and clothing.....	1,220,868	1.4
Furniture.....	1,122,718	1.3
Farm produce.....	1,100,800	1.3
Overnight camps.....	1,019,450	1.2
Plumbers.....	1,016,245	1.2
Amusements.....	929,121	1.1
Fish.....	700,000	.8
Electrical contractors and merchandise.....	675,120	.8
Rooms for tourists.....	585,700	.7
Sporting goods.....	542,700	.6
Painters and paper hangers....	434,000	.5
Laundry and cleaners.....	392,700	.4
Guides (wages).....	391,250	.4
Doctors and dentists.....	341,000	.4
Electric service.....	325,000	.4
Telephone and telegraph.....	300,000	.4
Ice and fuel.....	300,000	.4
Masons.....	300,000	.4
Florists and nurseries.....	298,638	.4
Bakery.....	200,000	.2
Water service.....	155,444	.2
Insurance.....	140,000	.2
Non-resident hunting and fishing licenses.....	136,000	.2
Photos.....	90,000	.1
Livery and saddle horses....	60,000	.1
TOTAL.....	\$85,684,741	100.0%

Effects of Recreation upon New England Towns

The history of typical towns affords a fourth indication of the importance of recreation as a land use. Bristol, New Hampshire, the first town to be considered, is located but two miles from Newfound Lake, and its township lines touch the shores of the lake.¹⁶ Thus opportunities in Bristol for the development of recreation as a land use have been excellent.

Between 1900 and 1932 manufacturing and agriculture declined in Bristol. Of the 13 concerns, large and small, which were in operation in 1900 only one important business survived to 1930 and two were added. Employment declined from 304 workers in 1908 to 150 in 1926. The town not only lost 50% of its industrial population but it did so in a time of general prosperity. As to agriculture, by 1900 Bristol had turned from sheep and cattle raising to fruit culture and dairying. From 1912 to 1932 the number of dairy cattle declined 42% to a total of only 169, and apple raising suffered a similar fate. The townspeople are aware of the unimportance of agriculture and recognize that the industry has been declining for years.

Despite this decline of manufacturing and agriculture in Bristol, population has increased and the standard of living has risen. There was a loss in population to 1920 but during the next decade the town regained the position it held in 1900. As to standard of living factors, telephones in use during the last decade increased 45% faster than for the State as a whole; automobiles increased 300%; and student enrollment

¹⁶ Arthur I. O'Brien, "The Development of the Recreational Industry in Bristol, New Hampshire," a master's thesis (economics) presented at Dartmouth College in 1932 (manuscript).

increased 250% in the 10-year period.

The reason for this increase in local prosperity in the face of a decline in basic industries seems clear to the investigator:

"The recreational industry has more than filled the gap left by other forms of economic activity. This business existed in Bristol even before 1910 but it has been only since 1920 that it has begun to assume real proportions . . . No other single factor or set of factors can account for these developments."¹⁷

The tourist traffic has had a profound effect on the automobile business of Bristol. The valuation of gasoline tanks and pumps more than doubled between 1924 and 1930, and gasoline sales of one station increased from 12,266 gallons in 1925 to 29,763 in 1930. Retail trade in Bristol has likewise been stimulated. Between 1910 and 1930 the number of general stores increased from two to four and the grocery stores from two to five. These are the types of store which would be expected to increase in number; tourists buy staples and novelties in small resort towns but obtain their "shopping" and "specialty" goods in the large centers. The First National Stores, Inc., a large grocery chain, has supplied an index of their sales in Bristol between 1928 and 1931 and in the whole state of New Hampshire. With the first quarter of the year as 100, the index for the third, or summer, quarter in 1928 was 199.1 for Bristol and 123.9 for New Hampshire; in 1929 it was 213.2 and 125.4, respectively; in 1930, 183.6 and 115.7; and in 1931, 214.5 and 126.8. Clearly this evidence shows recreation to be of the utmost value and importance to the typical resort town of Bristol, especially if we bear in mind that basic industries have declined almost to the vanishing point in the town in recent years.

Figures showing growth in tourist accommodations and commercialized amusement could be quoted, but they seem superfluous. The net effect on Bristol of these developments in the automobile business, retailing, accommodations for visitors, and the amusement business has been "greater capital investment, greater volume of business, more men and women employed, and an increase in income to the community in the form of wages and profits. Besides, . . . the increased number of visitors has stimulated the real estate business and the activity of local trades and professions."

A glance at the local valuation statistics of Bristol is illuminating because the town is split into two districts, the town proper, called the Union School District, and the less populated outlying countryside, called the Town School District. Between 1920 and 1930 property in the outlying district rose 80% in value and only 47.7% in the town proper. If we consider the fact that, because of the decline in agriculture in New Hampshire, rural valuation has tended to decrease, the situation in Bristol is even more significant; farms bordering on the lake were taken over by vacationists at high figures.

Finally, we must consider the social importance of recreation. In Bristol the social effect has been good because the town is not a mass recreational center. Guests of a high class and of good education have mingled freely with the townspeople. Perspectives and points of view have widened and many valuable acquaintanceships have been made. The same cannot be said of many New England resorts where fly-by-night hotel workers and hot-dog stand proprietors come in every summer only to make money. It is the resort business in

¹⁷ *Ibid.*

towns like Bristol that should be encouraged and fostered. After all, visitors will not know New England if all they see is a crowded beach lined with cheap amusement places; they must become acquainted with the small towns and hamlets where real New England life abounds.

A second detailed study has been made of the town of Sandwich, New Hampshire.¹⁸ This survey produced data and conclusions very similar to those for Bristol. Consequently, only those phases not covered in the Bristol report will be considered.

After examining the history of Sandwich, a town located 12 miles north of the northern end of Lake Winnepesaukee in a mountainous country with several lakes, the investigator drew the conclusion that "the shift in land utilization, from a settlement based upon a declining agriculture and a forestry spasmodic in practice to one which is predominantly vacational as to human occupancy, is the principal cause of the maintenance of high assessed valuations of property when compared with a continuously dwindling population."

Sandwich, with a population of 731 in 1930, now has 128 places used for recreational purposes of which 112 are used by the owners; seven properties are rented to summer visitors and nine are boarding houses and hotels. These 128 places cover over 10,000 acres of land of which only 590 acres are devoted to gardens, lawns, and general farming. The remaining area is left to a natural growth of forest trees, completely abandoned to wild growth. This fact coupled with replies received from questionnaires sent to property owners led to the conclusion that "the vacational class of people go to a moun-

tainous region to secure the environment of spaciousness and of freedom from artificial restraints which is the desired contrast to their necessarily cramped and crowded surroundings in cities."

The study of Sandwich again emphasizes the wide distribution of the money spent by vacationists. It is conservatively estimated that summer visitors leave \$75,600 annually in the town for maintenance costs alone. In addition to this there are capital expenditures made each year in structural improvements on property of non-residents. The effect on the public treasury of Sandwich by the development of the 128 vacation sites is also significant. These places bear 40% of the whole tax assessment of the town and yet occupy but 16% of the total area.

A comparison, as to percentage decreases in population and increases in assessed valuation between 1910 and 1930, of Sandwich and two representative agricultural towns in New Hampshire is instructive. Stratham, a prosperous farming town, increased its assessed valuation only 75% with a decrease in population of but 8%, while Sandwich, a town with submarginal land but extensively patronized by vacationists, increased its valuation 138% despite a 21% decrease in population. Deerfield, a town similar to Sandwich as to submarginal land but with very little attraction for the tourist, showed only a 34% increase in valuation with a 31% decline in population.

Land Utilization in the Hill Towns of Vermont

The Vermont Experiment Station in cooperation with the United States

¹⁸ Henry R. Francis, "The Recreational Industry in Sandwich, New Hampshire," a master's thesis

(forestry) presented at the University of New Hampshire in 1932 (manuscript).

Bureau of Agricultural Economics and the Vermont Forest Service has made a study of the proper use of land in the hill towns of Vermont.¹⁹ Thirteen representative towns out of a total of about 100 were selected for special analysis. The population in these towns in 1930 was less than half of what it was in 1880. This decrease was attributed to a decline in the wood-working industry and to the abandonment of farms and the departure of the farm population.

The total area of the 13 towns studied is 344,000 acres. In 1929, "194,072 acres were classified as in farms; 141,540 acres were classified as woodland not in farms; 5,722 acres were classified as recreational land; and 2,666 acres were designated as used for residential, power development and business purposes."²⁰ The woodland in farms and not in farms totals 259,675 acres, or 75% of the total area. In 1919 there were 431 unoccupied farms in the 13 towns, while in 1929 there were 640, an increase of 48.5%. The Experiment Station concluded that most of the land is submarginal from an agricultural production standpoint, and that farm families are leaving the towns in search of more remunerative occupations and a more satisfactory community life.

Because it is not usual to find enough good land within easy reach to make farming profitable, the use of small areas for agriculture is not recommended unless other industries are nearby which give supplementary employment. The number of manufacturing plants in the 13 towns decreased, however, from 92 to 30 between 1890 and 1929, and thus

much of the outside income of the small farmers was withdrawn. The Experiment Station concluded that "where such centers of life do not exist, it is better that the small, scattered areas of good farm land revert to forests."²¹

Exceptional opportunities for the development of the recreational use of land are present in these 13 towns. Many of the abandoned farms have excellent houses which, because of natural and healthful surroundings and climatic conditions, are ideally suited for summer homes. While the use of such houses for recreational purposes has been increasing, especially since 1923, only 47 of the 200 which were abandoned during the 10-year period 1919 to 1929 have been utilized for summer homes. Thus there are now over 100 abandoned farm houses in these 13 towns which can be purchased at very low prices. The conclusion was drawn that in all of the hill towns of Vermont there are approximately 1,000 idle and unoccupied farm houses available for recreational purposes.²²

Conclusion

The studies here presented clearly point to the conclusion that many towns in New England are practically dependent for their very existence upon the use of their land for recreational purposes. With land becoming submarginal for agricultural or industrial uses, these hamlets would have declined to a state of stagnation if the acreage could not have been turned to recreation. Economically and socially the resulting change is an important force in the life of New England today.

¹⁹ "Land Utilization," Chap. X, *Rural Vermont* (Burlington: Vermont Commission on Country Life, 1931).

²⁰ *Ibid.*, p. 144.

²¹ *Ibid.*, p. 146.

²² *Ibid.*, p. 147.

Comments on Legislation and Court Decisions

Comments on "Is Municipal Ownership at the Crossroads?"

THE historical data of Mr. Paul Jerome Raver's article, "Is Municipal Ownership at the Crossroads?" are decidedly interesting. Statistically it is worthy of praise and indicates much diligent research by the author. As far as the future is concerned, however, he seems to be merely speculating, draws no conclusions, and makes no predictions, but he infers that trend is a controlling factor. Possibly he is inviting others to express their opinions.

One often looks to the past for guidance in the effort to determine what the future will bring. Such procedure is sound enough in the study of broad economic questions but, when you apply it to the scattered units which make up the category of municipal electric service systems, affected by the developments of science and politics as well as economic conditions, you can hardly expect to learn anything of value. I doubt whether the trend of development of these systems, as depicted by Mr. Raver with charts and tabulations, will have anything to do with their future progress. How many of the individuals who will be responsible for shaping the destiny of the electric systems will consult the "trend" in carrying out their plans or will even realize that there is such a thing?

There are references in this article to "cheap power" and "mass production," each, of course, being associated with the other. Writers on power economics, politicians who ride the power hobby, and others who discuss the subject almost invariably seem to take it for granted that large-scale operations in

generation and distribution of electricity represent economy in the cost of electric service. Space will not permit detailed refutation of that idea here, but suffice it to say that anyone who is really informed on the subject of electric utilities can explain why it is that continued growth of a system beyond a certain point reverses the downward trend of service cost.

There are various reasons why systems have continued to spread out and interconnect but they are not all economic. Paradoxically enough, competition on the one hand and consolidation of companies on the other hand have both tended to stimulate that movement. The physical effect of the movement is to increase the concentration of generating capacity at certain points and to separate the customer farther and farther from the generating plant. Concentration of generating capacity in the large systems has long since passed beyond the stage where its progress has resulted in lowering of investment cost per kw. of customer demand. Continued increase in size of plants is furthermore not resulting in reduction of generating cost per unit of energy produced; and it should be realized that further improvement in generating efficiency beyond that now attained or attainable will have but negligible effect in reducing service cost. Separating the customer farther from the generator tends to increase investment cost per customer and likewise increases the liability to service interruption.

A city of 50,000 population with local generating plant and overhead

distribution offers a splendid opportunity for low-cost electric service. A city of half a million population or larger does not present equal opportunity mainly because of the necessity of eliminating overhead conductors in the denser load areas and the difficulty in finding suitable plant sites close to the load. As the size of city decreases below 50,000 population, the cost tends to rise but the rate of increase is not very sharp until you get under 10,000 population. The nature and diversity of the industries served naturally have considerable effect on the situation.

Every system requires reserve capacity in order to insure continuous service, and that is where interconnection serves its most useful function. It permits different cities or different systems to pool their spare capacity and thus reduce the amount of reserve which each must otherwise possess. But interconnections cost money to build and to maintain and they are subject to failure by action of the elements to a greater degree than is prime generating capacity. A reserve generating unit on the end of a 100-mile interconnection is by no means as dependable as an extra generator in your own city. The question of reserve can therefore often be satisfied at less cost and with more certainty by installation of prime mover equipment in the local generating plant or in a separate plant in which investment cost is held to a rock bottom figure by extreme simplicity of design and elimination of all so-called heat-saving devices.

It is realized that these observations are very general and that they lack proof, but the intention is to point out a course of reasoning which will lead people to consider the matter carefully before scrapping the local isolated plant idea for the grandiose schemes of

political leaders who are going to make water power "so cheap for the people that they won't have any care about how much they use." It is also intended to point out the inadvisability of continuing the movement toward physical and corporate consolidation of privately owned utilities. We are realizing during this depression how much better off this country would be if our great industries had never been concentrated in a few centers as they have been. Restoration of ownership and control of our electric utilities to the communities which they serve and elimination of dependency on outside sources for power supply appear now to be as logical as the movement for decentralization of industry, and the two would harmonize well with one another. This applies with equal force to private and municipally owned utilities.

In further reference to the physical aspect of the electric system, it is my belief that generation of current will eventually occur on the customers' premises, thus eliminating the central generating plant, the cumbersome distribution system, and the hazardous and uncertain transmission circuits. A movement in that direction merely awaits development of suitable conversion equipment. Some of the compelling reasons for this change are as follows: (1) Electrical transmission of energy over long distances is subject to practical limitations as to power capacity and distance and is more expensive than transmission or transportation of energy in other forms. (2) Electric distribution systems in the congested areas of large cities are pre-empting more and more of the available underground space which will eventually be no more than adequate to accommodate water and gas mains, sewer lines, communication cables, and rapid transit

facilities. This situation is becoming worse since the advent of A. C. network systems with their underground transformer and contactor vaults, as well as the additional ducts and manholes required. (3) It would be much cheaper and less complicated, for instance, to distribute all energy needed in home, shop, and office through a single gas service pipe. Gas energy now

comes to us in New York City at a cost equal to just about $\frac{1}{6}$ of the price paid for the equivalent in electric energy. Is it too much to hope that we shall one day be able to convert gas into electric energy in our own basements with safety, dependability, and reasonable efficiency? The silent perfection of the gas refrigerator is a hopeful sign.

T. A. BURDICK

Book Reviews

Mosher, William E., and Crawford, Finla G. *PUBLIC UTILITY REGULATION.* New York: Harper and Brothers Publishers, 1933. pp. xvii, 568. \$5.00.

"Through lack of appreciation on the part of legislators of the revolutionary changes taking place in the techniques, organization, and control of the utilities, regulation has become ineffective in many directions and almost futile in others." With their point of view thus clearly expressed in the introduction, the authors have written an interesting survey of the utility field, interspersing it with proposals for remedying regulation's present shortcomings.

Among the chief weaknesses of regulation noted by the authors are gaps in the laws relating to the interstate transmission of energy and the abuses resulting, or likely to result, from extensive holding company relationships among utilities. The growth of these two phenomena has proved a challenge to regulation by state commissions. To meet this problem are recommended "joint boards acting under and with a central federal agency," rather than direct regulation by a federal commission or further attempts by individual state bodies.

The United States Supreme Court comes in for its share of criticism as a result of its growing insistence upon cost of reproduction new as the dominant determinant of value. Other methods of arriving at a rate-base are discussed, as well as two proposals for price-fixing without a rate-base, but none is labeled as the solution.

The state commissions themselves are shown to have numerous deficiencies, some resulting from inadequate appropriations and others from their inability or unwillingness to fulfill their functions, regardless of financial difficulties. For example, those commissions are severely condemned which act "as a judge of evidence presented by contending parties," rather than as an aggressive fact-finding body. The latter interpretation of function is unquestionably preferable to the former from the ratepayer's point of view, but it is not yet established beyond question that all legisla-

tures intended the commissions to act as a composite of policeman, district attorney, and judge. The authors are also rather severe in their criticism of "negotiated" or "consent" orders, a tool which has proved its value during this depression as a means of cutting proverbial red tape and intercepting lengthy litigation. This method of effecting rate adjustments is characterized as "equivalent to raising the white flag of surrender in this important phase of regulation". The description is possibly correct in some instances but is a questionable generalization.

The volume terminates with the conclusion that regulation is doomed unless it is bolstered up by cordial cooperation on the part of public utility management. It is obviously difficult to reconcile this conclusion with the authors' attack on the "consent" order which in itself is a most expedient method of effecting such cooperation. Without the cooperation, public ownership is named as the only alternative.

Although attempting to cover the entire field of public utility economics in addition to specific problems of regulation, the volume will by no means supplant previously published public utility texts. The cursory manner with which its wide range of subjects is treated will limit its usefulness to the layman wishing a swift survey of the industry plus a criticism of its administration.

WALTER E. CAINE.

Zimmermann, Erich W. *WORLD RESOURCES AND INDUSTRIES.* New York: Harper and Brothers, 1933. pp. xix, 842. \$4.00.

This book, 650 pages of which are devoted to agricultural and industrial resources, will serve more readers than those for whom it was written—college students of economics. Study of it will profit all who wish a synthesis and interpretation of material on resources which has been brought to light by the social sciences allied to economics, particularly by human, social, cultural, and economic geography. The contributions made by natural science and technology to changes in both tangible and intangible resources also receive adequate attention.

In attempting to increase the reader's comprehension of the interdependence of physical and cultural bases of living, Zimmermann follows a functional instead of an encyclopedic method, introducing specific facts not for their own sake but as illustrations of general principles.

With his belief in a planned society and in internationalism many readers will disagree; at his interpretation of resources few will cavil. Resources, according to him, are functions of several interdependent variables. The three chief ones—human wants, human societies, and human arts—are explained in detail in Chapters II to V inclusive of Part I, which treats of "Backgrounds and Perspectives." An account of changes in the concept of "land" (natural environment) and a survey of the main components of "land" occupy Chapters VI and VII. Treatment of the cultural landscape and the machine environment, discussions of "The Man-Land Ratio", and "Some Observations on Resource Patterns, Culture Areas and Economic Systems" conclude the introductory section.

Particularly to be commended in the first 154 pages are: Zimmermann's account of major sources of conflict between individuals and group attitudes toward resources; his functional classification of the arts; his wisely selected categories of energy; his classification, based on that by L. L. Bernard, of four types of environments ranging from the natural environments to institutional environments; his summary and evaluation of population theories; his refusal to predict future population trends; and his discussion of the vegetable civilization of Monsoonia.

Parts II and III deal with the resources of agriculture and industry and their utilization. These chapters illustrate the principles of functional correlation established in Part I and further develop the author's philosophy. The discussion of the operation of the forces affecting the supply and demand of agricultural products and the treatment of agriculture in an industrial world are of particular interest and value. In the chapters on "Tree Crops" and "The Forest" the author stresses the time factor of production, draws an emphatic line of distinction between perennials and annuals, explains from a rather new point of view the destruction of our timber resources, and makes the reader realize the problems of

soil erosion and of reforestation and the danger of considering these as purely private economic questions.

The sections on mineral resources give good brief histories of the various industries—coal, petroleum, water power, electricity, iron and steel, copper, etc.—and illustrate again the author's basic concept of the nature of resources. The chief flaw in this part of the book results from the author's failure to have the manuscript criticized by persons who, being familiar with the mining and smelting of the various metals, could have checked the errors that have crept in. These mistakes are perhaps minor from the geographic or economic point of view but will appear important to those interested in the production of the metals.

Throughout, Zimmermann quotes from or cites a wide range of authors—economists, geographers, agronomists, engineers, political scientists, even a novelist or two. The selective bibliography, for college students, shows the same catholicity and the same general use of accepted authorities, practically all of them recent.

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Trévoux, François. *LE DÉVELOPPEMENT ET RÉGLEMENTATION DE L'INDUSTRIE ÉLECTRIQUE AUX ÉTATS-UNIS*. Introduction: *Economie et Droit des Entreprises de Services Publics*, by Edouard Lambert. Paris: Girard, 1933. pp. xii, 64, 424. 60 francs.

This exhaustive study of American public utility regulation made by a competent foreign scholar is timely since we are faced with the most critical and baffling of our ever recurring stock-takings of regulation. Students in the field will welcome the comparisons and conclusions which such a study may rightly be expected to produce.

The introduction by the Director of the Institute of Comparative Law and of the Institute of Social Sciences and International Relations of the University of Lyon portrays the utility problem as handled by the "contract of concession" method under the French civil code. No adequate analogy can be drawn between our period of franchise regulation and the entire French history of regulation through franchises because of the differences in the legal structures of the two countries. Lambert

finds that the French civil law method has been disrupted, in effect, through a series of decisions by the Conseil d'Etat beginning with the Terrier case of 1903. At that time the high administrative court of France declared, "The affair in litigation . . . is administrative, not by the fact of the law, but by its proper nature." It was, however, the case of 1910, *Compagnie generale française de tramways*, which was the French "Smyth v. Ames." This decision and the more widely known Bordeaux Gas case of 1916 established that "it is still the public power which devolves upon it [the franchise contract] in respect to all the responsibilities of the service, intervening and taking the necessary steps to overcome the exceptional difficulties encountered temporarily . . ."

These and later French cases are reviewed and quoted to show the manner in which the Conseil d'Etat, although still technically subservient to legislative action, has resorted to fictions, even more far fetched than those used by our Supreme Court, to bring the "extra-contractual circumstances of the extra-contractual periods" under the purview of the court and to adjust the agreements. But the process is something more than "after the act" regulation. The Ministry of Public Works, despite its lack of mandatory powers, has, like the American state commissions, "through permanence and specialization, . . . created programs of action, methods of procedure and principles or systems of rules." The parties, anticipating court action by the complainant, voluntarily adjust the franchise agreement in accord with the findings of the Ministry of Public Works. The intimation is that the interests of the companies and those of the customers are equally well cared for.

Lambert continues with a comparison of the common law and civil law origins, doctrines, and practices relative to utility regulation in the United States and France. Both systems have their sources in the doctrines of natural rights. With differing rates of development and along separate paths they have been led to the same practical result. Lambert concludes with a comparison of the French and American university teaching of public utilities and makes a strong plea for changes in the French system which will permit the development of public utility legal specialists.

Trevoux spent the years 1930 and 1931

in the United States as a Rockefeller fellow. He has drawn for his study of American public utility regulation from practically all the published materials. The work is thoroughly documented. He has followed, what Lambert terms, the American traditional treatment of regulation. In the first four chapters he summarizes economic characteristics, technical and corporate developments, and rate theories and practices relative to electric utilities. In the remaining chapters he runs the gauntlet of public utility problems. Beginning with a chapter devoted to business affected with a public interest, he takes up state commission regulation, valuation problems, rate of return, financial control, and present tendencies of regulation. Although there are extensive quotations from cases and other sources, the treatment is original and critical.

After pointing out the conventional economic criticisms of rate-base procedure and especially emphasizing that public utility property is not like other private property, Trevoux says, ". . . the Supreme Court never speaks of value pure and simple but of fair value . . . To adopt as criterion of rates that which assures a fair return on a fair value . . . returns, in effect, to the medieval idea of just price, cherished by the church fathers.

"There is an agreement, sometimes rather close, between the pronouncements of the Supreme Court—and especially the dissents of Mr. Justice Brandeis, the logic of which recalls the rigor of the scholastics—and the language of the canonists of the Middle Ages."

"But American pragmatism has prevented it [the Supreme Court] from sacrificing to the love of pure logic and has caused it to institute and maintain a system of regulation, doubtless not very rational but original, and which, . . . (since Smyth v. Ames), has been in fact a governmental system of control . . ."

The author despairs of reproduction cost as a measure of fair value because of its entirely hypothetical character. He holds prudent investment to have equally insurmountable difficulties, although the chief one seems to be that the community would have to bear the risks of technical obsolescence. Both methods are subject to difficulties because of changes in price level and there is a "necessity to return to an

economic conception," the measure of which is public utility credit. The author makes no new suggestions toward solving the valuation problem. His critical analysis is, however, as good as, if not superior to, anything in English with which the reviewer is familiar. The same characterization applies to his discussion of the rate of return.

A thesis noted throughout the book is that regulation of rates inevitably must lead to financial control of both operating and holding companies. Trevoux admits that there are many difficulties in the path of financial control of holding companies but insists that it will come in the United States. To him, also, state regulation must give way to federal regulation for the industry is broader than the bounds of even groups of adjacent states. The Federal Power Commission is a stepping stone in the direction of federal control. Constitutional authority, as civil code authority, cannot for long resist the sweep of economic needs resulting from the widening of the sphere of economic activities. Both Trevoux and Lambert foresee something approximating continental regulation, especially in Europe.

The book is a valuable addition to the field and deserves an English translation.

ORMOND C. CORRY.

Comey, Arthur C. *TRANSITION ZONING*.
Cambridge: Harvard University Press,
1933. pp. xiv, 150. \$2.50.

A large proportion of the difficulties in municipal zoning arises at the border between two classes of districts. An abrupt change from business to residential classification of property, for example, puts the

burden of disadvantage upon the residential lots. With business development adjoining, and inhibited from other than residential use itself, such lots may suffer from the zoning regulations. During the 17-year period in which zoning technique has been built up in this country, more and more elaborate devices have been developed to alleviate the injustice at district boundaries. This process has been called transition zoning—the transition from one set of regulations to another. Mr. Comey's book is a timely and careful review of such transition zoning devices in all parts of the United States.

Few outside the city planning profession will realize what a task it has already become to appraise any one of the great many aspects of the twelve or thirteen hundred American zoning ordinances which have been adopted during the brief life of this prodigy among municipal laws. Mr. Comey cites more than three hundred cities and villages now employing transition zoning, and he describes some two hundred different types of device for making the transition from one district to another under various circumstances.

Zoning has become a normal part of municipal government. It assumes very heavy responsibilities by partially setting the mold in which the town will be cast. And it wields a major influence upon all private real property. In perfecting the methodology of zoning, the transition provisions are extremely important; this book is an excellent source of information on the devices used and on the experience with them to date.

JACOB L. CRANE, JR.